

CVCP wants longer engineering courses

Engineering courses at universities should be longer to meet the needs of industry, according to the Committee of Vice-Chancellors and Principals.

In its evidence to the Finiston inquiry on engineering the committee also argues for a new range of degree courses which would give students experience more closely related to job opportunities.

It says: "It is clear that in many cases a three-year first degree course cannot provide the quality of education and training needed and we would welcome further opportunities to develop longer courses wherever these are appropriate."

The initiative of the University Grants Committee in establishing four-year "elite" engineering courses at a few universities should be extended.

About 75 per cent of all first degree engineering graduates were trained in universities in 1975-76. The vice-chancellors believe that the chief job of the universities is to train and educate professional engineers.

However, they say that universities must be prepared to cater for students who decide during their course to become technician engineers.

They should provide a common approach for all students in the early stages of their course, but the committee thinks "there is a need to reassess the nature and content of the later stages of courses for those students who are not likely to achieve professional status."

For such students the education and training should be appropriate to their likely career objectives and immediate employment prospects at a lower level.

There has been a shortage of technician engineers, though not of professional engineers and many graduates from courses designed for

professional engineers have been recruited as technicians.

The committee calls for the closer integration of the academic and training stages and believes that universities should play a part in the postgraduate training of engineers.

It says that professional engineering institutions should define clearly the roles and educational needs of graduate engineers.

Another suggestion is that sponsoring companies should give money through the Engineering Industry Training Board to help give students experience of industry in the holidays and on placements.

The memorandum wants greater standardization of teaching in school in mathematics and physics. It also says the early and irreversible choice of subjects should be discouraged.

The majority of students joining the elite four year engineering courses to be launched at Imperial College, London, next autumn, will spend a pre-college year on the shop floor, it has been revealed.

Both the electrical and mechanical engineering students will undergo one year of industrial training before starting the four year management, mechanical and chemical engineering students will gain industrial experience through special project work.

It has now been agreed by London University that the course should lead to a B.Eng. This, an Imperial College spokesman confirmed this week, would necessitate an amendment to the university's statutes.

Students selected for the course, first announced by the college in autumn (THE TIMES October 29, 1977), will have to gain a minimum of three B grades at A level or the equivalent.

The college is now awaiting an announcement of funding from the University Grants Committee.



Duke drops in at Buckingham

More than a third of the first intake of students to the University College at Buckingham have failed to graduate, it has been revealed. At the college's graduation ceremony last week only 43 of the original 67 students received the college's licence.

Of the successful licentiates 31 had graduated in law, eight in economics and four in politics, economics and law.

The Duke of Edinburgh, pictured here with students, visited the university's small market town campus on graduation day.

Oakes claims lion's share of oil cash

by Judith Judd

Education and research deserve the lion's share of investment from North Sea oil, Mr Gordon Oakes, minister of state for higher education, said yesterday.

Speaking at a conference on the Universities and Britain's Future organized by the Association of University Teachers and THE TIMES, Mr Oakes said: "As I see it, this is the only practical way to ensure that this country is able to go on enjoying the benefits of our windfall loot after the oil has all run out. To put it another way, I believe it represents an investment we simply cannot afford not to make."

Later he said that there was a clear connection between the "vigor of a country's research effort and its social and economic performance."

Technological innovation "could not proceed without basic research and we could not even import foreign innovation without a highly trained and progressive scientific community."

Universities were cultural bastions but they also had practical functions. "Isolationism on their part was ever appropriate, but could not see any justification for it today."

Mr Oakes also suggested that universities should collaborate more closely with schools and take a fresh look at their own requirements.

ments to encourage children from a wider variety of social backgrounds to go on to higher education.

Lord Boyle, vice-chancellor of Leeds University made a spirited defence of the expenditure of big sums of money on scholarship.

The pure theorist was needed, he said, not least because his vision of the world seldom turned out to be absolutely pure. It often proved to have some connexion with practical realities.

"Secondly, one has to face the fact that democracies—whatever their other advantages—do not always want to hear or face the truth. Therefore it must be important that certain limited issues should be examined by men and women of proven academic capability."

Many parts of our cultural heritage "were" worth preserving. "I would far rather live in a community where it was somebody's vocation to achieve through imagination and disciplined study the kind of intellectual understanding of a great composer which alone can breed true scholarship."

The most abstruse subject could bring us face to face with problems of human experience.

Lord Boyle said that the utilitarian argument for universities was a large part of their case but he was not convinced that it was the whole of their case.

Earlier, speaking of changes in universities he said that increasing democracy in its institutions with permanent heads becoming an exception made it necessary for vice-chancellors to watch their step.

Universities' grants must be increased by 15 per cent by 1981, Professor William Wallace, chairman of the AUT Education and Development Committee, told the conference.

Otherwise, he said, some young people seeking for G and A levels as well as mature and part-time students would not get into university in spite of their qualifications.

The alternative of "unrolling through" the years ahead until the numbers entering university began to decline was false and short-sighted.

Among social sciences, the subject which supplied the majority of university entrants, the numbers were certain to hold up. More children from the other social groups would rise through the system to A levels and N and E level examinations were introduced more would meet the entrance requirements.

Even if the drop in numbers happened, it would coincide with a time when the academic staff appointed in the years after the war began to retire. If financial cut-backs were required they could be achieved fairly painlessly.

Call for major shake-up in FE management training

by Maggie Richards

A major shake-up of training for management in further education is proposed in a report by a sub-committee of the Advisory Committee on the Supply and Training of Teachers.

The report, prepared by the ACST's sub-committee on the training of teachers for further education, urges the use of both induction and in-service courses for management training in the FE sector.

It recommends the establishment of a new advisory and consultative group concerned with educational management in further education, and planning of training of a national level.

One of the main functions of the new service for training course organizers and the report calls on the existing of teachers for further education to be re-examined in the light of the new challenges.

The advisory and consultative group would be linked to a national forum—previously proposed by the sub-committee—which would be responsible for coordination of efforts in the field of general teacher training for the FE sector.

At regional level, the main task would be to ensure coordination of provision in consultation with the new national group.

The report also suggests that be given to institutions preparing to embark on large scale management training schemes, the report issues a word of warning: that few

regions are likely to be able to sustain more than a single major centre, with a team of staff able to undertake mutually supportive research and development work.

Regional advisory councils should be asked to give immediate consideration to the question of available resources and future coordination, it says.

Though it recognizes the importance of management training at all levels, the report suggests the main emphasis should be placed on post-initial stages: "coinciding with the principal change of emphasis for many further education managers from activities concerned primarily with teaching to those concerned mainly with the organization of learning within a wider framework."

Stress should be laid on "on the job" management training, combined with a more flexible appointments system. Jobs themselves should be organized so as to broaden experience and appointments to an authority which may involve working in more than one department or in more than one institution should be used as training opportunities.

A staff counselling service is suggested, so that the needs of teachers within institutions can be examined and a coherent strategy formulated for helping staff development of staff.

One of the major uses of management training in FE should be to give staff to cope with the many changes and developments now taking place in the sector, the report concludes.

AMA may extend mandatory grants

Students taking professional and technical courses may become eligible for the first time for automatic grants following an unexpected initiative by the local education authorities.

The Association of Metropolitan Authorities, which represents 77 L.E.A.s including the Inner London Education Authority, last week agreed to consider the possibility of extending mandatory grants to degree courses.

A key factor in the AMA decision was the recent publication of a survey showing that the number of discretionary awards made by local authorities has been unable to keep pace with applications.

The recommendation for the new inclusion of the clause comes from Mr Richard Southwell, QC, who conducted the inquiry into the O'Carroll affair. It was originally voiced in his draft report to the OU Council following the inquiry, along with comments about the misuse of the university's library, telephone and duplicating facilities for personal purposes.

Subsequently, parts of the report dealing with these issues were omitted from the final version, distributed to all academic staff, but it is understood the proposal for the new clause, and the comments about abuse of university facilities, have surfaced in a letter from Mr Southwell to university officials which has not been circulated.

Mr Southwell requests that the issues raised are brought to the attention of the OU Council which will meet on April 15.

An AUT spokesman also commented the comments in the report that facilities were being misused: "It was often difficult to distinguish between academic and personal use," he said.

An OU spokesman said that until the council had time to consider the letter and receive comments from officials there was nothing the university could say.

Frustration grows as more queue up for senior posts

by Judith Judd

The proportion of senior staff in universities must be raised, Professor Derrick Saul, acting principal of Edinburgh University, has told the University Grants Committee.

This is the latest expression of the growing frustration among university staff about the lack of promotion prospects, illustrated by a survey carried out by THE TIMES.

It shows that the Robbins expansion and the recent financial squeeze have led to a backlog of lecturers who would normally have been promoted to senior posts.

Nor is there much prospect of an immediate improvement. Figures of expected retirements in the next six years are low. Universities are finding themselves with an increasing number of staff at the top of the lecturer scale, though this does not include all those who would have been promoted in different times.

At Leeds there are now 193 people at the top of the scale compared with 107 in 1971. The university estimates that next year there will be 228. At Birmingham 165 of 512 lecturers were at the top of the scale a year ago. Now 191 of a total staff of 519 are there.

Bristol says the average age for promotion to senior lecturer has gone up from 41 in 1972 to 47. The reserve of posts it was keeping to deal with the Robbins bulge has been halved. In some places the actual number of promotions has dropped dramatically. In Birmingham there were 34 in senior lecturer in 1974 but now the number has dropped to single figures. In Sussex the figures were 11 and 13 in 1973 and 1974. In the past three years they have been eight, nine and seven respectively. The average age of promotion has gone up by only one year—to 41—since 1973.

At Sheffield the number of promotions will show a substantial drop for the first time this year. Last year there were 22 but less than a dozen are expected this year. Mr A. M. Currie, the registrar, speaks of a "freezing of the system."

which is stopping senior people getting out to jobs in other universities. The good people get promoted in the end but they may have to wait longer.

Though opportunities will be created through movement to other jobs, figures of expected retirements make depressing reading. Birmingham expects only nine senior staff to retire in the next six years. Leeds says that in 1982 there will be four, in 1983 two and in 1984 four. The picture is similar at Sheffield where two people are expected to retire next year and only one the following year.

Professor Saul's letter to the UGC urges a relaxation of the ratio which allows only 40 per cent of staff to be in senior posts. The Association of University Teachers has already asked for this and has been told that it would contravene the Government's pay policy.

The AUT reckons that not all universities have employed their full quota of senior people and that the average is around 37 per cent—a difference of about 500 posts.

The targets, known throughout the polytechnic world as "Dehney norms" after the civil servant who concocted them, have dominated recruitment and expansion since 1972.

The committee stipulated that in group one faculties, teaching workshop or laboratory-based subjects, the student-staff ratio should be raised to a band between 7.5:1 and 8.5:1. In group two faculties, where teaching is generally classroom based, the target was set between 9.5:1 and 10.5:1.

This week's report shows substantial progress. The overall ratio has risen from 7.1:1 in 1973 to 8.1:1 last spring. During that period the ratios in group one rose from 6.2:1 to 7.5:1 and in group two from 8.4:1 to 9.3:1.

The report points out that in 1973 some 8,600 group one lecturers taught more than 50,000 students at advanced level. By last spring the number of lecturers had increased to about 9,000 and the number of students to more than 63,000.

Student and staff numbers in group two subjects rose even more sharply. Summary of results calculated from Spring term data 1977

Group 1 Group 2
Faculties Faculties
Student Student
ratio ratio

Birmingham 7.0 8.6
Bristol 8.2 11.2
Central London 7.8 8.4
Sheffield 6.2 11.7
Wales 6.6 8.9
Hatfield 7.5 9.1
Huddersfield 6.9 8.7
Kilgobbin 6.9 8.7
Lancaster 6.2 11.4
Leeds 7.0 8.7
Leicester 7.2 10.3
Liverpool 6.3 10.7
Manchester 6.6 8.9
Middlesex 6.6 7.6
Newcastle 6.2 10.2
North London 6.8 9.2
North Staffordshire 7.4 9.7
Oxford 6.4 9.4
Plymouth 6.2 10.1
Portsmouth 6.2 8.6
Sheffield 6.9 8.6
South Bank 6.4 7.8
Sunderland 7.0 8.0
Trent 6.4 9.8
Wolverhampton 6.6 9.9
York 6.7 9.2
North East London 7.0 9.3

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Scots separatists 'against the law'

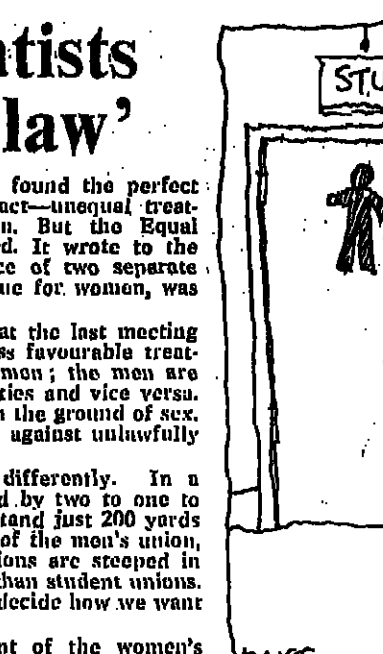
Glasgow University thought it had found the perfect answer to the sex discrimination act—unequal treatment for men as well as women. But the Equal Opportunities Commission disagreed. It wrote to the university to say that the existence of two separate student unions, one for men and one for women, was against the law.

The letter, which was discussed at the last meeting of the university court, says: "Less favourable treatment occurs for both men and women; the men are denied access to the women's facilities and vice versa. The denial in each case is clearly on the ground of sex. Both sexes are being discriminated against unlawfully though in slightly different ways."

The students, however, see it differently. In a referendum last October they voted by two to one to keep their separate unions, which stand just 200 yards apart. Mr Alex McBride, president of the men's union, said this week: "Our separate unions are steeped in tradition. They are more like clubs than student unions. I think the EOC should leave us to decide how we want to run them."

Miss Catherine Savage, President of the women's union, said: "The Glasgow University Equal Opportunities Commission. She was disappointed by the result of the referendum. "But the students must like it or they would not have voted the way they did."

Even the fact that the men seem to have the edge in the present arrangement has not brought triumph to the feminists, who have been trying to end the present arrangements. Though the men are allowed into the women's union part of the day, the women



OU may tighten employment terms

by Maggie Richards

An attempt to tighten regulations governing the employment of Open University academics may be made shortly, following a barrister's investigation, but OU staff see it as an attempt to inhibit academic freedom.

Next month members of the university's council are likely to consider a suggestion that a new clause should be added to the terms and conditions of employment of academics allowing the expression of personal views by staff: "provided that it is not prejudicial to the performance of their university duties."

The clause, which already applies to non-academic staff, was used recently to terminate the employment of Mr Tom O'Carroll, a press officer at the university, and chairman of the Paedophile Information Exchange.

The recommendation for the new inclusion of the clause comes from Mr Richard Southwell, QC, who conducted the inquiry into the O'Carroll affair. It was originally voiced in his draft report to the OU Council following the inquiry, along with comments about the misuse of the university's library, telephone and duplicating facilities for personal purposes.

Subsequently, parts of the report dealing with these issues were omitted from the final version, distributed to all academic staff, but it is understood the proposal for the new clause, and the comments about abuse of university facilities, have surfaced in a letter from Mr Southwell to university officials which has not been circulated.

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Polys near staffing level norms

by Peter David

The 30 polytechnics have for the first time come within reach of the guidelines on staffing levels laid down by the Government in 1972. A Department of Education and Science report has disclosed.

The report, which details student-staff ratios in each polytechnic, was distributed this week to chief education officers throughout England and Wales. Copies are also to be issued to polytechnic directors and the heads of selected further education colleges.

It reveals that after five years of increasing student numbers and holding down staff recruitment the polytechnics have at last brought their student-staff ratios within reach of the target norms laid down by the local government pooling committee, which controls central finance for the institutions.

The targets, known throughout the polytechnic world as "Dehney norms" after the civil servant who concocted them, have dominated recruitment and expansion since 1972.

The committee stipulated that in group one faculties, teaching workshop or laboratory-based subjects, the student-staff ratio should be raised to a band between 7.5:1 and 8.5:1. In group two faculties, where teaching is generally classroom based, the target was set between 9.5:1 and 10.5:1.

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The students, however, see it differently. In a referendum last October they voted by two to one to keep their separate unions, which stand just 200 yards apart. Mr Alex McBride, president of the men's union, said this week: "Our separate unions are steeped in tradition. They are more like clubs than student unions. I think the EOC should leave us to decide how we want to run them."

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Lord Boyle, Mr Gordon Oakes, and Professors William Wallace and David King were among the speakers at an AUT/THES conference on the universities and Britain's future. Full report, 1-1V.

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DES proposes English standards for teachers

by Simon Midgley

Minimum standards of competence in English and mathematics will be demanded of all applicants for initial teacher training from 1980.

This will happen in a proposal contained in a draft circular issued by the Department of Education and Science this week for formal approval after consultation.

Local education authorities and representative educational institutions to whom the circular has been sent by Easter.

From September, 1980, all entrants to undergraduate and postgraduate courses would be expected to have attained a Grade C or above in the GCE "O" level examination or a Grade I in the CSE examination in both mathematics and English.

If they lack these qualifications candidates should have satisfied the training institutions concerned and its validating body in other ways of numeracy and literacy to an equivalent level.

The suggestion that there should be minimum standards in these two subjects was originally made by the Advisory Committee on the Supply and Training of Teachers (ACSTT) early last year.

Mrs Williams, Secretary of State for Education and Science announced her intention of introducing such minima in her July Green Paper.

This week's draft circular represents a more detailed statement of her plans. It points out that with smaller intakes to training in the next few years and the rise in entry standards as the B Ed qualification replaces the Certificate of Education it should be practicable to make the necessary changes in the near future.

by Peter David

The three Middlesex Polytechnic social work courses, which students and staff claimed were in jeopardy because of unfilled vacancies, have been given a one-year clean bill of health by the Central Council for Education and Training in Social Work.

In a letter to Dr Raymond Ricketts, the polytechnic director, the council has confirmed that the social work staffing arrangements for the current year are adequate, subject to the appointment of an extra senior lecturer.

The letter follows five months of negotiation during which the polytechnic administration, the CCETSW and staff and students on the courses have held different views about the adequacy of staffing levels.

What has complicated the dispute is that the CCETSW, which validates social work courses, uses

a different method for staff student calculations from the one used by the polytechnic and the local authority pooling committee.

Use of the CCETSW method has enabled students and staff to maintain that social work courses are understaffed while the polytechnic has argued that staff provision is generous.

Although the council has now approved overall staffing arrangements at the polytechnic, it has asked for details about the deployment of staff across the three courses. It has also asked the polytechnic to keep student recruitment next year down to a level which will not further extend the staffing ratio.

The council is determined to continue negotiations with the local authority pooling committee in a bid to make social work a special case for staffing purposes. The allocation of social work to the general category of arts and social science results in a staff-student ratio which is too high and unsuitable for social work teaching, a council statement said this week.

Royal Society denounces Whitford plan

by Robin McKie
Science Correspondent

The Royal Society has denounced the Whitford report which calls for changes in the copyright law of Britain.

The council of the society said the proposal to license the copying of articles from books and periodicals would be a restriction that could have a damaging effect on scientific research. There must be free interchange of information and the present practice of allowing single copies of articles should be allowed to continue.

"Science rests upon its published record and ready access to public scientific and technical information is a fundamental need of scientists everywhere. All bars which prevent access to scientific and technical publications hinder the progress of science and should be removed," a council report states.

"Making single copies of extracts from books or periodicals is essential to research workers and the production of such copies is necessary for scientific practice."

The Whitford committee has proposed that a new licensing scheme be set up in which central societies would collect copyright fees charged for extracts copying at libraries and redistribute these to relevant publishers. Such a scheme would have enormous administrative problems, says the council which believes that the costs of the proposed licensing have not been taken adequately into account.

The committee's proposal to cover the copyrighting of material in computer stores has also been condemned. The council believes that raw information should not be subject to copyright. It is the arrangement of the data which is the important criteria. The Whitford proposal is not clear on this and the Royal Society is concerned that merely to put information into a computer could become a restricted act under copyright law.

Similarly, the Whitford recommendations on the copyrighting of photographs are also considered to be unclear. The committee suggested that the copyright holder should be the person responsible for organising the taking of a photograph.

The definition is adequate for artistic photographs but says the Council of the Royal Society provides insufficient guidance for photographs used for scientific and geographical purposes. It should also be made clear that data, such as vegetation and cloud patterns, may be extracted from photographs without copyright infringement.

Board picketed on Welsh language

Welsh students demanding more higher education courses taught in the Welsh language yesterday picketed a meeting of the University of Wales academic board in Swansea.

The National Union of Students is asking the university to set up a central body to coordinate and administer all Welsh medium courses in the principality. This body would receive special funds from the University Grants Committee to sponsor courses in colleges where Welsh medium courses were feasible.

A spokesman for NUS Wales said: "The present provision in higher education for Welsh medium teaching makes a nonsense of the excellent work done at nursery, primary and secondary levels. Although some 6,000 schoolchildren receive their education through the medium of Welsh at secondary schools, only 200 students receive courses parts of courses or tutoring through the medium of Welsh at university."

TUC urges mandatory grant for full-time FE students

by Patricia Santinelli

The TUC is urging the Department of Education and Science to introduce a national mandatory network of allowances for full-time further education students, modelled on the current Scottish system.

In a letter to the Prime Minister, the TUC emphasises the need to support measures, including the proposed allowances, to ensure the success of the DES's complementary educational programme in the Manpower Services Commission's programme for the young unemployed.

This includes the reform of 16 plus examinations, the use of school for part-time courses and the use of redundant colleges of education for block residential courses for young workers.

The TUC also wants the Government to make an immediate commitment to the establishment of universal vocational preparation of all young workers in which there would be an integrated training and educational element. It recommends that a committee of inquiry be set up to report within one year on how provision can best be established.

This committee would assess the education and training needs of young workers who are not covered by apprenticeships and other formal schemes of training. It would collect information and assess the existing programmes in this area and advise on a strategy for developing

ILEA continues preference scheme for Londoners

London residents and workers are to continue to receive preferential treatment when applying for adult education course places within the Inner London Education Authority boundaries, it has been decided.

The decision to continue the scheme, first introduced last year, was made by the authority's further and higher education subcommittee last week.

A special report before the subcommittee maintained the scheme and proposed working to improve the terms of the system under which only Inner London residents or workers can sign on for adult education programmes before the official enrolment date or by post.

Under the scheme at least 50 per cent of the total adult education places in the authority area must be allocated to postal enrolment.

Local consultative committees and the central consultative committee for adult education in Inner London were asked to give their

views on the scheme before the committee made its decision.

The main opposition in the past has come from the National Association of Teachers in Further and Higher Education, which claimed that the scheme's operation required additional largely unpaid work by staff.

To gauge the precise effect of the policy on the number of London workers and residents now planning a major course started next autumn.

The scheme is to be introduced in a new adaptation at the committee agreed. Institutions now given a greater degree of flexibility in postal and post-enrolment can be filled in advance enrolment dates.

The Professional Association of Teachers (PAT) is making a special effort to increase its credibility in the higher and further education field as part of a general membership drive.

The relative newcomer to the field of teacher trade unionism—created in 1971 by a small group of senior teachers dissatisfied with the militancy of other trade unions in the educational arena—has vigorously opposed its strike action in all circumstances.

Over the next few years it is hoping to increase its membership throughout the educational spectrum from 11,000 to 20,000.

At present the majority of its members work in secondary and primary schools—although in July 1977 PAT estimates the first under 4 per cent of its members worked in colleges of education, independent colleges, technical colleges and polytechnics.

Professor Ewan Stafford Pugh has been appointed vice-chancellor of Reading University in succession to Dr H. R. Pitt, who is retiring.

Professor Pugh, who became a part-time vice-chancellor at Newcastle in 1972, will take up his post in January next year. He was acting vice-chancellor from August, 1976, to December, 1977.

He has been a lecturer in statistics in the Durham colleges and

new programmes, including piloting and assessment.

It would advise on how the programme should be financed, what financial and other arrangements should be made for the running of universal provision, completion.

In addition the committee prepare an additional report on other issues that arise in connection with a comprehensive provision of full-time vocational preparation and further education for all of the 16-18 age group.

This would involve the creation of the work of schools, their education, further education, examinations, grants policy, experience for vocational and the relationship of training further education to the a base.

The National Union of Students has welcomed the DES's demand for a drop-out rate of students, a large since September.

"This is a national cause caused by financial difficulties, although we welcome the DES's demand for a drop-out rate of students, a large since September."

The latest announcement of a £19.50 will exacerbate the situation of 40,000 students who get up at all," Mrs Sue Shipman, president of the NUS, said.

Although a unified Board of Trustees took over two years ago, the three predominantly black colleges, or UDC campuses as they are now properly known—are still working as separate institutions, with very different courses, academic rules and personnel regulations.

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North American news

'Comprehensive' campus raises academics' fears

from Clive Cookson

WASHINGTON

A bold attempt to forge a comprehensive new public university here in the nation's capital is provoking serious conflicts between the administration of the fledgling institution and the academic staff of the three existing colleges that are being merged into it.

The past month has seen a two-day faculty strike; emergency legislation from Washington City Council giving the President of the University of the District of Columbia (UDC) the right to hire and fire; the sacking of a senior administrator; and many angry charges and countercharges and threats of lawsuits.

UDC was authorized by Congress in October 1974 in order to give the district of Columbia—the federal territory that coincides with the city of Washington—the equivalent of the state university it would have if DC was a proper state.

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vice-president for academic affairs. Few expect the timetable to be enforced.

All the senior administrators appointed by Dr Carter have acting titles, because UDC still does not have its own personnel policies. It was to clarify their position and strengthen the hand of the interim administration that Dr Carter and the trustees persuaded the city council to pass emergency legislation giving them new powers to implement personnel changes.

Although Dr Carter said the emergency measure applied only to administrators, its broad wording worried the academic staff, who claimed their rights of tenure had been rescinded.

Teachers on the Van Ness campus (formerly Washington Technical Institute) went on strike for two days. As the staff of a vocational school, they have fewer qualifications than the other UDC faculty members in third of the full professors do not have a PhD and they are afraid professors will be demoted in the merger.

According to Dr Raleigh Allen, the acting dean of academic affairs at Van Ness, who was dismissed by Dr Carter for supporting the strike, the President told him that many professors at Washington Tech would be under-qualified for that rank in the new university.

The strike ended when Dr Carter agreed not to use the emergency legislation until the trustees have negotiated safeguards for tenure rights with faculty representatives.

The relatively heavy teaching loads at Van Ness (15 hours a week) are another grievance, academics at Federal City and DC Teachers College are expected to teach nine and 12 hours a week respectively.

Conversely, those at Federal City (now UDC's Mount Vernon Square campus) are afraid the administration will increase their teaching duties, which they insist need to be lighter to allow them to do research.

A further worry at Federal City is the maintenance of academic standards at UDC. The academic probation rules have been dropped for all students so all students will be able to take a full range of courses, however many they failed last term. The reason was the new computerized registration system which could not cope with the different rules of probation and suspension on the three campuses.

The attitude of the 13,000 UDC students to the various conflicts is unclear. One student leader expressed support for the Van Ness faculty strike but another was strongly critical of the strikers.

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Core studies 'bring coherence'

Dr Ernest Boyer, the United States Commissioner of Education, has addressed an urgent plea to American universities to develop a common core curriculum for their undergraduates.

Diversity on American campuses has gone too far, he told the 285th Charter Day convocation of the College of William and Mary in Virginia. "I believe that, academically at least, the undertow of diversity has pulled us far from shore, and today the safest thing one can say about a college diploma on many campuses is that the student probably has been around the campus for about four years."

"On the vast majority of campuses required courses have been dropped, and the ones which remain reveal a staggering incoherence of purpose. Every core curriculum of the past was guided by a vision of coherence; what we need today is a new vision," said Dr Boyer, who was Chancellor of the State University of New York until a year ago.

Although students must be free to develop their own interests, he went on, "truly educated persons also must move beyond themselves, must gain social perspectives, must see themselves in relation to other people and times, must understand how their origins and wants and needs are tied to the origins and wants and needs of others. Such perspectives are also central to the academic quest."

The core curriculum should be built on common experiences which can and must be shared, Dr Boyer said. First, students' must learn about their common heritage—not in a grand survey of American or world history but through intensive, interdisciplinary study of a few strands of history.

The second element of Dr Boyer's core curriculum is to look at contemporary communications (through language, mathematics and the arts), social institutions and vocations.

Third, Dr Boyer said, the core curriculum should focus on those alternatives for the future that in a thousand separate and unsuspected ways are being shaped today.

His curriculum would examine the "history of the future"—the images of the future that have held earlier societies together. Religious tracts, utopian literature, even science fiction would be studied.

They seem destined to join architects and lawyers as professions, once thought safe and secure, but now overcrowded. As a result, there is a shortage of doctors and reduction in the intake of medical students and bans or restrictions placed on overseas recruiting.

Another Australian academic dream of the 1960s and early 1970s looks as though it may finally be at an end. Doctors, for so long top in public surveys for job esteem and a specialist could expect at least double that amount) and a generally better standard of living, has aggravated the situation.

At the moment, Australia recruits most of her overseas doctors from English-speaking countries such as Britain, New Zealand, Ireland, Canada, America and South Africa.

The Hospitals and Allied Services Advisory Committee, which comprises representatives of state and federal health authorities, has suggested that a 10 per cent reduction in first-year admissions to Australian medical schools be made from 1979. If adopted, this would cut the first-year intake into Australia's 10 medical schools from 1,650 to 1,485. This proposal will now be considered by federal and state Health Ministers.

Last year the Australian Medical Association called on state and federal governments to control the inflow of foreign doctors. It demanded a quota on foreign graduates, an end to automatic registration of graduates of some overseas schools (including Britain) and that all foreign doctors should be required to sit an examination.

Foreign doctors should be required, it urged, to sign a document saying that they were prepared to live and work in Australia on a permanent basis as a condition of registration.

Japan pledged \$100m to the fund and the latest contribution, the fourth, brings her total payments to \$70m.

The fund has also received \$4m from Venezuela (out of \$10m initially pledged in 1976, over a

period of five years) while payments by all the 16 countries so far participating amount to nearly \$76m.

Last December, the UN General Assembly supported a call by Unesco's executive board that the UNU deserved more financial support. It is estimated that \$500m will be needed for the UNU to carry through its programme of research into global problems, among them world hunger, human and social development and natural resources.

West Germany

Research drive aims to aid young scholars

by Günther Kloss

The Hulseberg scheme, a special programme of financial support for "highly qualified" young research workers of special promise, is now in operation. The programme was first suggested by leading academic organizations such as the Rectors' Conference, the Wissenschaftsrat (the country's top higher education advisory body), the Deutsche Forschungsgemeinschaft (German Research Association), and the Max-Planck-Society (THES, October 22, 1976). The Federation-Länder Committee for Educational Planning and the Promotion of Research adopted the proposal last October.

The programme, on a five-year trial period, will be administered by the research association, the country's largest and semi-independent research organization which allocates government funds for the support of research in both the arts and sciences.

This year it will have a total budget of DM64m (£17m), provided jointly by the central government and the Länder. The Hulseberg programme will cost a mere DM6.2m in 1978, split equally between Bonn and the Länder.

It is planned to provide annually up to 150 young research workers by German nationality with grants of DM2,300 net monthly, roughly equivalent to a German lecturer's salary, in order to enable him or her to work independently on a research project. There will be an additional allowance for married couples of DM200 for books and travel.

Each grant will be paid for five years. What will happen to these

ward-holders after the end of their fellowship has not yet been decided. It is hoped that many of them will obtain permanent teaching or research appointments.

Applicants must be no more than 33 years old. They must possess a doctorate, and the *Habilitation*, a further research degree or an equivalent research qualification. Fellows will also have to do some teaching.

Applicants are chosen by a central selection committee of 45 members: 11 from the Länder, two from the federal authorities (although with 11 votes), and 32 academics, including the presidents or their representatives of the five academic organizations which initiated the programme.

The scheme was conceived to improve the general situation of academic research in the Federal Republic. Even though two recent surveys show that university teachers apparently are still able to devote a lot of time to research, many academics and organizations are greatly worried about the quantity and quality of research output in West Germany.

In addition, because of the rapid enlargement of the institutions of higher education in the 1960s and early 1970s two-thirds of all university teachers are now under 30. There will be very few new posts in the years to come—probably not more than 300 annually; and this at a time when the output of university graduates will be higher than ever before. The new scheme will give promising researchers outlets they might not otherwise have been able to get.

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The Hospitals and Allied Services Advisory Committee, which comprises representatives of state and federal health authorities, has suggested that a 10 per cent reduction in first-year admissions to Australian medical schools be made from 1979. If adopted, this would cut the first-year intake into Australia's 10 medical schools from 1,650 to 1,485. This proposal will now be considered by federal and state Health Ministers.

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Money not the root of brain drain from developing countries

Money, as the song goes, may make the world go round but it is not necessarily the most important reason why professionals join the international brain drain.

This unfashionable conclusion is contained in the recently published findings of a multinational comparative survey conducted by the United Nations Institute for Training and Research.

Family ties, professional considerations and working conditions may be at least as important influences on the decision to stay at home or go abroad.

The *Brain Drain: Emigration and Return*, by Professor William Glaser and Mr Christopher Hubers, is a report of the findings of a study of the migration and return of professionals from developing countries who study in developed countries.

It is based on 13 surveys in 11 countries. These include surveys of students from developing countries who were in Canada, France and the United States; surveys of professionals living in France and the United States who received their professional education in a developed country; and surveys in Argentina, Brazil, Colombia, Ghana, Greece, India, the Republic of Korea, and Sri Lanka, of professionals who studied in a developed country and who subsequently, either immediately after study or after a temporary stay abroad, returned to their home country.

What makes the study unique is that the aim of the research has been to discover the motivations and factors that influence the specific choices of these individuals with regard to place of study and subsequent employment.

Taking account of a number of variables such as social origin, class, talent, ability to adjust to social conditions abroad, and income differences between developing and developed countries, this approach adds a new perspective to the "brain drain" debate which has to date mainly centred on economic considerations.

One of the most significant findings of the study is that income differences between the developed and the developing countries is not as

important a consideration in emigration as is generally believed.

Although the authors note that increased salaries abroad are clearly associated with a greater intention to emigrate, the relationship is very limited and other influences are often very important.

"Among no group of persons—whether students, stay-ons, or returnees from any country—is there a strong tendency for larger income prospects abroad to produce increasing increments in plans to emigrate."

"Many persons are committed to return and remain in developing countries despite the belief they could earn two or three times as much overseas."

Many people return home, for example, to South-East Asia, despite salaries much below the rates in North America, since living standards are adequate at home and since non-monetary reasons push them out of developed countries and pull them back home.

Others can earn more at home, either because pay for foreigners is low in developed countries (such as France and Great Britain) or because high salaries can be found at home (such as Iran, Brazil, and francophone Africa).

If pecuniary differentials alone controlled migration, the authors say, developing countries would have insoluble problems.

They would only be able to keep their best professionals by matching the pay offered abroad, and their economies would become increasingly unbalanced by heavy cash flow into the salaries of the elite.

It appears, they add, as if adequate salaries rather than very high figures would be attractive enough to keep most people at home, provided they are accompanied by a variety of non-monetary incentives.

In several countries with low salaries, professionals complain at least as much about jobs that are stifling in their routines and primitive in their facilities.

Better facilities, more opportunities for research, closer communication with new developments overseas, and more assistants would improve the foreign trained professional's morale as well as his productivity.

In general the report concludes that most students from developing countries plan to return home after study abroad. However, some nationalities have large proportions who say they plan to emigrate permanently.

At least 30 per cent of the Trinidadians, Haitians, Argentinians, Pakistanis, and students from India and Korea were also quite close to this figure.

On the other hand, large proportions of Brazilians, Africans, Tunisians, and students from many small countries reported intentions to return.

Of those interviewed who trained abroad some nationalities were much more likely than others to have worked outside their native country before returning home.

Over one-third of the Indians had practical experience abroad, while nearly every Colombian and Brazilian returned went straight home after getting his foreign degree.

The students' survey suggests that up to one quarter of Trinidadian, Tobagonian, Jamaican and Tunisian students who study abroad also contemplate temporary foreign work before returning home.

Those having made the decision to go home, the authors say, have returned because they have plans to emigrate again. Even among many who plan to spend most of their careers working abroad attachments to home remain strong.

All in all the report concludes, however, that developing countries differ widely in their patterns of losses through brain drain: some attract back nearly all citizens who study abroad, a few lose many people and their development may suffer.

There is no clear cut tendency, the authors say, for developing countries to regain or lose able persons more than others. But possibly the least able are most likely to return.

A number of highly specialized professions are lost after education abroad, namely biologists, chemists, engineers, in several technical fields, systems analysts, chemists and physicists.

However, there is no major evidence of developing countries losing all their narrow specialists, only to



regain people with more general training.

Plans to return home are strongest in agriculture, business and philosophy. Plans to emigrate and remain abroad are strongest in languages, education, architecture, and several of the biological sciences.

Persons in the arts and journalism seem to become increasingly discontented after return and contemplate emigrating again.

The major findings of the study are:

- Membership in national, religious or racial minority groups is an important reason why some professionals leave developing countries.
- Family ties may be an even stronger influence than salary or working conditions upon individuals' decisions to return to the home country or to emigrate. Those who have been associated with return and the absence of such ties with brain drain.
- Professionals will choose to live in the country in which they believe their children will have the best lives and careers.

Perceptions of where more adequate, where jobs are plentiful, and where the individual has the greatest professional freedom, are important influences on the decision to emigrate or return to the home country.

Specialists in a few fields emigrate from developing countries because of lack of equipment, inadequate office space, research funds and contacts with scientists in other countries as professionals.

UNEPAR hopes that by providing information about emigration, this study will help individual developing countries to make better decisions about their own circumstances and policies that might attract or encourage them to return.

The *Brain Drain: Emigration and Return* by W. Glaser and C. Hubers, published by the Pergamon Press, Oxford, is available for £10.00.

Simon Niles

Britain's higher education system has almost tripled in size since 1960. It now caters for about 520,000 full-time and sandwich students and about 230,000 part-time students, on a variety of courses and in a variety of institutions. The present planning assumption is that full-time and sandwich numbers will increase by 1981 to 560,000. The 1981 planning figure itself represents a downward revision of earlier figures based on assumptions of more rapid growth in demand than has in fact materialized over the intervening years.

Past growth in full-time and sandwich higher education provision and the planning figures adopted for years ahead have reflected a pattern in which, traditionally, young entrants have predominated; and it is in providing for this group in particular that successive Governments have adhered to the principle enunciated by the Robbins Committee in 1963 that higher education courses should be available for all those who are qualified by ability and attainment to pursue them and who wish to do so.

It is already certain that the 18-year-old age group (from which most young entrants are drawn) will be declining in size from 1982/83 and will fall much more steeply from 1990/91: the children are already born. But there is no certainty (nor can there be) about the proportion of this age group likely to be suitably qualified for and willing to embark on higher education courses. During the 1960s participation rapidly increased; and over the last seven years it has been steady at about 14 per cent of the 18-year-old age group. (It is a measure of the uncertainty of the future in higher education projections that the figures underlying the projections in the 1972 White Paper, *Education: A Framework for Expansion*, Cmd 5174, assumed that participation would now be growing to reach 22 per cent by 1990, and rising strongly.) The charts illustrate both how full-time and sandwich participation rates and total student numbers have actually grown since 1960.

On the other hand, it is quite possible to envisage a quite different pattern of growth in higher education in the 1990s which differs in significant respects from that which obtains today. Courses might be longer (or shorter); the pattern of entry direct from school into higher education might be modified in various ways, for example by a growing tendency to seek some experience in employment before entering higher education; and the higher education system itself might reach out to embrace different types of students and to meet in new ways the needs of recurrent or continuing education. Developments such as these (many of which might not happen without the impetus of positive policy decisions of different kinds spread over time) need to be considered within the context of possibilities from which to choose the above projections give rise.

The central projection in Chart 2 suggests that student numbers in full-time and sandwich higher education might rise from the current figure of 520,000, through the current 1981 planning figure of 560,000, and up to 600,000 in 1984-85; numbers would then stabilize at that level for six years or so to 1990, when they would start to fall back to about 530,000 in 1994. This would mean an increase of some 80,000 students over the next decade, followed by a contraction of 70,000 students by the space of four years from 1990 to 1994; and possibly further contraction thereafter.

At present unit recurrent costs (averaged out across the higher education system as a whole) are £2.5 billion in each year, with a "bump" between now and 1984 when the projected numbers fall back to approximately the present level, represents a total additional cumulative expenditure of about £2.5 billion (an extra £240 millions per annum in each of the four years). If this additional cumulative expenditure is measured between 1981, for which a planning figure of 560,000 has been set, and 1992, when the numbers fall to that same level, it amounts to about £1 billion (an extra £120 millions above 1981 costs in each of the peak years). There would also be additional capital expenditure if purpose-built accommodation were provided to match the peak: at

current average unit capital costs, to provide new accommodation for 40,000 students (that is, the difference between the 1981 planning figure of 560,000 and the peak of 600,000) would require a commitment of something of the order of £200 million. All these figures are very rough approximations, but they serve to give some indication of the resource implications which would be involved.

If it were clear that higher education was going to follow this pattern over the next 14 years, acute problems of resource allocation would arise, especially in relation to other educational needs. In order to illustrate these problems, it is convenient to posit three models.

Model A

This might involve first expanding and then contracting the full-time and sandwich higher education system to the full extent postulated above. The kinds of problem to which this contraction would give rise are broadly familiar from the recent history of contracting the teacher training system: they are principally those of acquiring and then disposing of unwanted buildings and of building up and then releasing staff no longer required. The disposal of buildings would perhaps present the lesser difficulty. Nevertheless, public money would inevitably be spent on capital provision for some short-term purposes.

But reducing staff numbers as a whole would be a very difficult process. If it were necessary to shed any significant numbers of staff over a short period, it would be very difficult to achieve this by relying on natural wastage and retirements alone. Even if some thing could be achieved in this way, a period of steady staffing numbers followed by a period of decline would have a serious effect on the career prospects of junior staff, and would make it difficult to recruit the young talent necessary to the vitality of the higher education system's research function.

Model B

This model might involve reducing the scale of the projected expansion after 1981, and therefore the need for so much contraction after 1990. It therefore involves a substantial risk of reduced opportunities for qualified higher education applicants during the years of the projected peak, which would in effect mean a break (if only temporary) with the Robbins principle. How serious the risk would be depends on which of the three forward projections already referred to is most nearly reflects what would happen to student numbers if they were subject to no new constraints.

One step which should be feasible would be to avoid long-term resource commitments while maintaining the size of the current standards of provision. This might mean, for example, renting rather than building to meet short-term accommodation requirements; and appointing temporary staff both for teaching and other purposes to tide the system over the few years of the projected peak in numbers. To the extent that this could be achieved, it might make it easier to shed both staff and buildings as student numbers fell at the end of the 1980s.

Models A, B and C all presuppose a higher education system in the 1990s which is broadly on the same lines as the present system. This section turns attention to possible new developments which might modify the future pattern of higher education to a lesser or greater extent. One set of possibilities involves reducing the projected peak in student numbers; another might have the effect of averting the subsequent decline. The possibilities are discussed below primarily in terms of changing patterns of provision or of entry. But it is important to bear in mind that changes in a range of secondary Government and institutional policies.

Model D

It might be possible to cater for all students seeking entry to higher education in the 1980s without need to allocate resources to the full extent implied by the peak levels of the "central projection". Such a step might mean interpreting the Robbins principle in a new way, though it would retain intact the underlying philosophy referred to in paragraph 3.

One way of maintaining intakes while constraining total numbers would be to encourage provision and take-up of two-year rather than three-year higher education courses. The Diploma of Higher Education might offer one vehicle for this, and there might also be the possibility of accelerated degree courses for the most able students. If a change to two-year courses were to constitute the sole means of keeping total numbers at a maximum of 560,000, those courses would need to divert an entry of up to 40,000 students a year from longer courses for a limited period.

Another possibility which could be seen as the problems of planning for the 1980s would be to give students from full-time to part-time courses. Already full-time and sandwich course students represent little more than 50 per cent of those in advanced further education excluding teacher training (although about 90 per cent of those in universities, where degree courses are much more dominant). Existing part-time advanced courses are often stretched out over many years and individual students may attend for as little as one day a week. For the last seven years, the Open University has also offered its own particular contribution to part-time higher education.

However, existing part-time advanced provision in the multi-modal sector is largely confined to strongly vocational courses, and students on them are usually already in related occupations. There is little evidence of a significant demand. More generous financial assistance for part-time students (as, for example, in the

form of longer periods of paid educational leave from their employment) might both encourage take-up and reduce wastage.

One particular further possibility which could have the effect of smoothing out the projected peak in student numbers would also have educational merits. Individual students and institutions can both benefit from deferring initial entry to higher education for a period after leaving school. Already some institutions may encourage students to obtain work experience between school and higher education by offering them a place for a year ahead. It is possible to envisage a formal system of deferment, under which individuals applying for entry straight from school for whom no place was available would be given priority over first-time applicants in the following year.

Short of a formal system of deferment, it might be possible to take steps to encourage and facilitate voluntary deferment. Again, one way of doing this might be to introduce higher grants for deferred-entry students, which might in practice be achieved by lowering to 21 the age at which students are regarded as independent of their parents for award purposes.

Model E

All the preceding models have taken as their base an assumption that there will be a sharp decline in the numbers of students coming forward for higher education at the end of the next decade. The final possibility to be examined, however, might arise if social and economic requirements brought about significant changes in the pattern and composition of the higher education student body.

For example, the possibility that changes in social class mix might increase participation during the 1980s. This would be a purely demographic factor, reflecting the fact that the birthrate in recent years has declined less sharply in professional and managerial families from which a large proportion of present young home entrants to higher education are drawn. But there is also the possibility of taking positive steps to encourage participation by children of manual workers to approach more closely the level of participation by children of non-manual workers.

Recent evidence suggests that youngsters take their decisions about whether or not to aim for higher education well before they reach the age of 18; and that social, cultural and peer-group influences are crucial factors in these decisions. While it may be difficult to point to any particular measures which would have a swift and significant impact on participation by children of manual workers, it is at least possible that participation by this group will be the 1990s be as much affected by the gathering impact of policies in the fields of housing, health and the social services generally as by educational policies.

Another possibility is that the demand, which is already beginning to make itself felt, to devote more educational resources to those already in employment might result in more systematic opportunities for recurrent education for mature students. Priority might be given at first to those who had missed higher education opportunities at normal entry age. But this might not preclude more radical developments, such as a systematic scheme for continuing education at an advanced level, or indeed at a non-advanced level.

It must be recognised that substantial changes of far-reaching social importance are involved in this Model. There may be losses as well as gains; and the resource implications are great. It is unlikely that any of the developments envisaged could happen without a major grant from Government. This might mean new financial incentives to encourage take-up by people in employment (whether this was in the form of paid educational leave for continuing education or more generous grants for mature students on full-time courses at degree or equivalent levels) and perhaps also some compensation for employers.

Copies of this discussion document are available from Room 1/27, Department of Education and Science, Elizabeth House, York Road, London SE1 7PH, and from Mrs Young, Division V, Scottish Education Department, 8 George Street, Edinburgh.

Computerized economy game better training than Monopoly

A new teaching technique gives students the chance to test their theories

For one extraordinary moment, the major problem of our economy—unemployment—was solved. But the illusion lasted only a split second as inflation suddenly leapt up and the balance of payments showed a large deficit.

This process of being repeatedly ended and sometimes to even more unhealthy conclusions by over 250 economics students playing a macro-simulation game, part of a new course for beginners devised by the Esme Fairbairn Research Centre at Heriot-Watt University.

The computer game played by means of a print-out terminal illustrates the complexities of a dynamic economy and the problems inherent in the use of fiscal and monetary policy to pursue goals of economic stability.

The emphasis is on combining a number of policy tools (government spending, marginal tax rate and money supply) to reach specific national economic goals. These are defined by a "welfare function" which expresses mathematically the relative weight the policy makers give to various economic indicators of well-being. Scoring well in this game requires giving thought to what the "welfare function" means in terms of policy.

Simulation here has the great advantage, lost by any lecture, of putting students face to face with the practical results of their decisions, thereby teaching them effectively the relationship between different aspects of the economy. It also represents a quick method of learning the fundamentals of economic

theory, invaluable to a variety of professions including politicians and trade unionists.

However, this is only a small part of the whole set of economics courses which has taken Professor Keith Lumsden director of the centre and his team three years to develop, following the award of more than £50,000 from the Department of Education and Science. Its format is a combination of traditional and new teaching techniques designed to ensure a quick, cost effective and nearly fool-proof method of giving new students a grounding of macro and micro-economics.

"We secured the world for new techniques as well as developing our own, and we chose the best of the most cost effective, because this combination had a high probability of being adopted by the university," Professor Lumsden explained.

Professor Lumsden spent 16 years at Stanford University, California where he developed and experimented with innovative teaching techniques.

"I decided that I should return as the project was so big and so exciting. It was really the type of research that I had wanted to carry out all my life," he said.

A graduate of Edinburgh University he is author and co-author of several texts on micro and macro-economics as well as programmed learning. He is also the editor of a new well-known book *Efficiency in Universities* which resulted from a research project of the same name and contained articles by leading economists such as Professor Harry Johnson.

Professor Lumsden's link with the centre runs back as far as 1971 when following a request from the Esme Fairbairn Trust to come to the United Kingdom and give a talk on economics education, he was

given a grant to investigate the way economics was being taught. The Economics Education project ran from 1971 to 1976 and led to an examination of new teaching techniques and how effective these are. At this stage the trust and Heriot Watt University put up the funds for Professor Lumsden to set up the centre at Heriot Watt.

His interest in innovative teaching techniques and their effectiveness has not been equally matched by fellow academics in the United Kingdom. He believes that universities are particularly loath to adopt new teaching methods because they have so little data on how cost effective these really are.

One additional reason which is encouraging universities to change their attitudes and turn far more towards new techniques has been the need to find a way round the teacher/student ratio because of the cost of the recruitment of new teachers.

Although the centre has been working quite closely with other universities and polytechnics, little information about the new course has been released generally. The course which has now run since last autumn at the university is due to go public in 1979 when experimental testing begins at five universities and five polytechnics, such as Hull University, the London Graduate Business School and City and Newcastle Polytechnics.

Within the university the introduction of the micro/tips/caes course has aroused much enthusiasm and interest from many departments eager to adapt the package to their own disciplines.

The nine-week micro course—the macro course is of the same length and type—consists of 25 lectures and type—consists of 25 lectures and core topics such as economic concepts, issues and tools, demand and

supply, price and output determination in markets, needed to understand the basis of the price system and resource allocations.

This is supported by 11 Tips survey and 10 case studies, which are entirely voluntary but basically serve to test the student's understanding of his topic, while results give the necessary information on how to remedy any gap in his knowledge, if it exists.

Tips is a computer tutoring system developed by Alan Kelley at Duke University which has only since last autumn replaced many tutorials in the micro course.

This followed results of a questionnaire given out to 186 students which showed that tutorials were found ineffective by the majority. A later survey indicated that only eight out of 236 students wished tutorials to be reinstated after having used the tips system.

Tips consist of 14 objective questions based on each lecture to which students can only give one correct answer. Its real novelty lies in the personal element introduced into computer assessment. Students are advised of their results in the form of a letter based on the score they achieved. For example, message A is sent to students who achieved total success, while message F reads: "I had hoped for better results..."

In addition, each lecturer will be sent a computer summary report showing the number of students who attended the class and the number taking the survey as well as the average percentage who gave correct answers to each question. This quickly identifies the particular topics not understood by the class, or not adequately covered by the lecture.

In spite of their voluntary nature, the majority of students have opted to take tips surveys, but proportionately fewer chose to do the case

studies. The latter were motivated at the suggestion of Mr G. Hewitt, deputy director of the centre, who successfully used his previous post at Heriot Watt College.

Case studies are more cost than tips, but again are based on the content of the lecture. Students are presented with an outline problem and given certain facts. They are asked how they would solve this, and have to give reasons why they adopted a particular solution.

According to him the system is an ideal way of identifying "high fliers" and the "low fliers" and the "middle" group. Measuring the cost effectiveness of this method as against the traditional micro-course has proved an important aspect of the whole process. Tentative results show that taking an average of 10 case studies per student reduces the total cost to half that of conventional micro-course, which is estimated to cost just over £100 per student. However, this effect decreases and is totally offset when an average of 32 case studies are taken per student.

This shows that fewer numbers the conventional micro-course per student while the cost per student/Tips/Case study is much less. However, this effect is not with student numbers. Evaluation of these methods also a vital part of the project, so that output can be measured in terms of efficiency of the course, and where possible, increased where possible.

His plans for the future of the package for the next year, and following the completion of the study, are to carry out a survey of other centres such as other universities, but this will depend on technical developments.

Patricia Samuels

Higher education into the 1990s

The fall in the birthrate since 1964 has already caused primary school rolls to decline sharply; over the next few years our secondary schools will face a similar decline; and our higher education institutions will begin to feel the effects in the early 1980s. The paper from which these extracts are taken is about the development of Britain's higher education system in the face of that prospect. Its main focus is the period between 1981 and 1994. It considers the possible implications of demographic trends for the current pattern of

higher education and how that pattern itself might change over the next 15 years. The various possibilities discussed are not a series of discrete policy options, since the eventual outcome may well lie in some combination of policies. Nor does the paper suggest answers or conclusions to the issues which it raises. Its purpose is more modest—to direct public attention to these issues and to encourage their debate by interested bodies and individuals. The Departments will welcome views and comments on all aspects of it.

Thus, on the basis of the "low variant" projection, to freeze the system at the 1981 level of 560,000 students would not involve reduced opportunities; but such a freeze would involve a significant loss of opportunity on the basis of the "central projection", and of course still larger loss of opportunity on the basis of the high variant "projection".

Some people might be disposed to argue in favour of explicitly abandoning the Robbins principle on the following grounds. Higher education confers social and economic benefits, both personally on the individual student and more widely on the community at large. But as the higher education system expands, graduates are increasingly having to turn for employment to jobs previously filled by people without higher education qualifications. This has contributed to suggestions from some quarters that higher education provision may have come implicitly to place too great an emphasis on meeting students' personal wishes and too little on the economic needs of society as a whole; and some sections of opinion complain from time to time that higher education provision is inadequately informed by manpower planning.

Model C

A third possible "resource" approach would be to move to a policy of catering fully or projected student numbers (even if in the event they rose above the "low variant" projection) but to do so more economically, in terms of both recurrent costs and long-term resource commitments. To some extent it may be possible to look to developments in educational technology to reduce unit costs without detracting from the quality of provision. It seems unlikely that these would secure the required measure of economy: in the past they have tended to improve the quality without reducing the cost. Beyond this there are various expedients which could be considered.

One step which should be feasible would be to avoid long-term resource commitments while maintaining the size of the current standards of provision. This might mean, for example, renting rather than building to meet short-term accommodation requirements; and appointing temporary staff both for teaching and other purposes to tide the system over the few years of the projected peak in numbers. To the extent that this could be achieved, it might make it easier to shed both staff and buildings as student numbers fell at the end of the 1980s.

Models A, B and C all presuppose a higher education system in the 1990s which is broadly on the same lines as the present system. This section turns attention to possible new developments which might modify the future pattern of higher education to a lesser or greater extent. One set of possibilities involves reducing the projected peak in student numbers; another might have the effect of averting the subsequent decline. The possibilities are discussed below primarily in terms of changing patterns of provision or of entry. But it is important to bear in mind that changes in a range of secondary Government and institutional policies.

Model D

It might be possible to cater for all students seeking entry to higher education in the 1980s without need to allocate resources to the full extent implied by the peak levels of the "central projection". Such a step might mean interpreting the Robbins principle in a new way, though it would retain intact the underlying philosophy referred to in paragraph 3.

One way of maintaining intakes while constraining total numbers would be to encourage provision and take-up of two-year rather than three-year higher education courses. The Diploma of Higher Education might offer one vehicle for this, and there might also be the possibility of accelerated degree courses for the most able students. If a change to two-year courses were to constitute the sole means of keeping total numbers at a maximum of 560,000, those courses would need to divert an entry of up to 40,000 students a year from longer courses for a limited period.

Another possibility which could be seen as the problems of planning for the 1980s would be to give students from full-time to part-time courses. Already full-time and sandwich course students represent little more than 50 per cent of those in advanced further education excluding teacher training (although about 90 per cent of those in universities, where degree courses are much more dominant). Existing part-time advanced courses are often stretched out over many years and individual students may attend for as little as one day a week. For the last seven years, the Open University has also offered its own particular contribution to part-time higher education.

However, existing part-time advanced provision in the multi-modal sector is largely confined to strongly vocational courses, and students on them are usually already in related occupations. There is little evidence of a significant demand. More generous financial assistance for part-time students (as, for example, in the

form of longer periods of paid educational leave from their employment) might both encourage take-up and reduce wastage.

One particular further possibility which could have the effect of smoothing out the projected peak in student numbers would also have educational merits. Individual students and institutions can both benefit from deferring initial entry to higher education for a period after leaving school. Already some institutions may encourage students to obtain work experience between school and higher education by offering them a place for a year ahead. It is possible to envisage a formal system of deferment, under which individuals applying for entry straight from school for whom no place was available would be given priority over first-time applicants in the following year.

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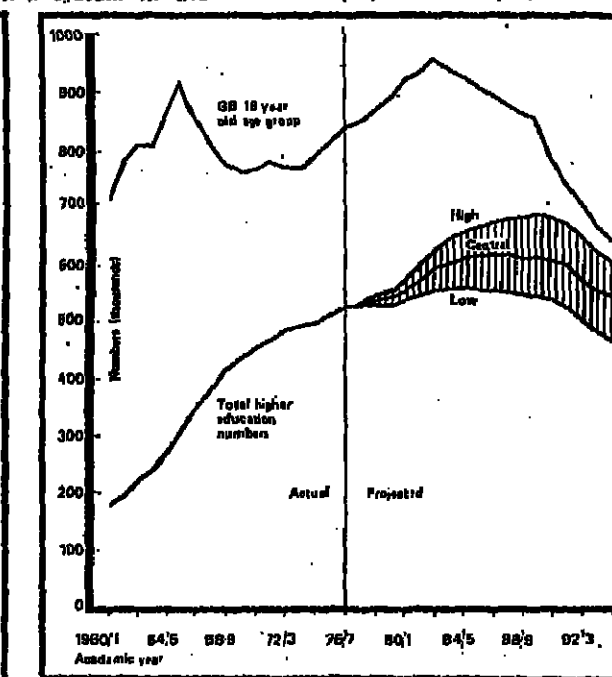
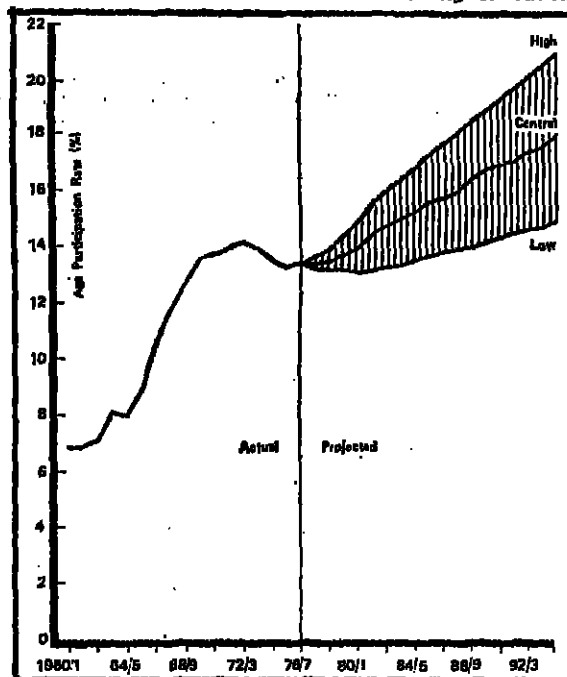
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Boon for books at OU marketing company

Eighteen months ago the Open University's marketing department staff magazine enthused about the university's commercial dealings in South Africa.

The article was intended to provide information on sales of mathematics units. But it unwittingly ignited the fuse of a Watson Hall powder keg which is now smouldering furiously, and threatening to explode into a major confrontation over the role of the department, now a limited company—Open University Educational Enterprises.

OUEE (pronounced "oh-ee") in Milton Keynes (pauze) began life in 1971 as the marketing division of the Open University, and was designed to exploit the financial potential of the university's course materials.

Alongside the growth of marketing services, the university's publishing arm, Open University Press, was putting stronger and beginning to look outside the university to the wider possibilities of the open market.

Two possible courses of action became apparent: the Open University Press could evolve into a university press in the conventional sense; or it could be linked to more aggressive sales tactics of the marketing division in a new, more commercially orientated venture.

Despite the misgivings of some—including for a while the Department of Education and Science—the university opted for the latter. From January 1, 1977, the Open University Press was incorporated with the marketing division to become a separate entity—OUEE.

In keeping with its new identity—and to provide more breathing space on the ever-shrinking campus at Walton Hall—OUEE moved to premises at Stony Stratford, eight miles away.

Originally, one of the major arguments for a commercial organization had been that profit targets could be determined and sales goals set. To date, it is difficult to judge what has been achieved.

This year the company is likely to achieve its aim of a £1m turnover. Last year it topped £750,000, but income and sales had been increasing steadily before the creation of OUEE.

Sir Charles Troughton heads the Company board, which is directly responsible to the Open University Council. Four academic representatives from the university are also on the board, and the vice-chancellor Sir Walter Perry is an ex-officio member.

At first sight the appointment of Mr John Bonn of Mills and Bloor, to represent the main external publishing interest on the board, might seem curious. But apart from its widely known down-market romance editions, Mills and Bloor is also responsible for a fair proportion of educational publishing.

In its new form, OUEE wants to expand in several directions, and has been aided by the inheritance of a ready-made network of world wide distributors. Under the auspices of the former marketing division, these outlets handled the flow of university materials—units, films and books.

But to cope with the transatlantic appetite for Open University material, the company has established a wholly-owned subsidiary, Open University Educational Media Inc, which began trading in early summer last year from offices in New York.

Having severed the umbilical cord with the Open University, the company is now aiming for new sales territories while retaining the prestige-making imprimatur of its parent body.

Much of the OUEE's hopes of expansion are being pinned on the book publishing field, where Mr Tony Seward, Open University press editor, wants to see closer scrutiny of Open University-produced course units—"particularly those with good sales records"—to examine the feasibility of producing fully-fledged books for the international market.

The company also plans to put its distribution network to good use by revising scripts to suit a particular overseas market, and taking out all references to the Open University.

This method would also allow the company to exploit to the full the use of Open University course materials, in more traditional textbook form, in conventional colleges and universities.

Redesigning of Open University material will also take place to tempt readers at the periphery of education system. Two volumes have been prepared for publication this spring: *Child Abuse: A Study Text*, edited by Vicky Carter, and *Child Abuse: A Teacher and Sourcebook*, edited by Constance M. Lee, are designed to appeal to magistrates, police and social workers.

Another major sphere in which OUEE is hoping to break new publishing ground is the field of adult and continuing education. Entirely compatible with its role as an Open University offshoot, and in line with the recommendations of the Venables report, the company is intent on capturing a large slice of what it considers to be a comparatively neglected market.

An initial foray into the field has continued this summer. Last year OUEE began issuing an updated version of *Adult Learning* by Jennifer Rogers, with the author compiling two new chapters. The original publishers, Penguin, had allowed the book to go out of print, but after sales of 4,000 in one year OUEE feels its gamble was justified.

According to Mr Seward the decision to reprint *Adult Learning* has earned the company a certain amount of goodwill from adult educators, and OUEE is now busy planning follow-up titles.

First volumes in the pipeline are a book on guidance and counselling services for adults, and one dealing with current issues and thinking in the adult education service.

Back at the OU itself, the rumblings of discontent about the role of OUEE, which preceded the formation of the company have been exacerbated by the discovery of its continued involvement in the sale of materials in South Africa.

Senate has expressed its concern, and asked the OU Council what steps have been taken to halt the trade. Meanwhile OUEE's general manager, Mr John Cox, has wide distributed his company's stance and compiled a report on the financial implications of withdrawal from South Africa for council members.

Debate on the issue is far from finished, and the affair has served to put OUEE back in the spotlight at Walton Hall, where broader questions about the company's policies, its profits, and control by the council are surfacing.

Maggie Richards

Judith Judd meets UGC secretary Geoffrey Cockerill

The new boy reads himself in

Mr Geoffrey Cockerill, the new secretary of the University Grants Committee, has just embarked on a programme of reading to educate himself about higher education. He has 26 years in the Department of Education and Science, most of his career has been spent on educational problems far removed from the universities' orbit. Two of his major preoccupations have been special schools and multi-racial education.

He insists that he is still a new boy in the university world. "At the moment I am still reading myself in. You can't swim it up. You have to learn it largely through a process of osmosis. But higher education has fascinated me all my professional and personal experience. He says that his entry to it came through his wife who works at Hillcroft, a college which educates mature women.

During his time at the DES he was involved with both art education and the colleges of advanced technology. At the beginning of the '60s, he spent three years as secretary to the national advisory council on art education. His only contact with university administration was in 1965 at the time when the CATS were being turned into universities.

He regards his new job as an excellent way of rounding off his experience after ventures into most other sectors of education. "It is one of the best jobs one can get in the civil service. When people graduate they are frequently torn between a career in universities as a civil servant and a career in the civil service. In this job you can have the best of both worlds."

He did not himself find the choice difficult, but that may have been because his university education was not far from the mark. His background is very different from the stereotype of the Oxbridge metropolitan civil servant. He was born on the campus of Leeds University where his mother and father were living while his father was a mature student.

When his father's course finished he was offered the headship of a village school in Lincolnshire and

the family moved into the school house. "The house had no running water but I had electricity and would nowadays have been considered a great luxury. There were three bedrooms and a bathroom. I attended a small primary school near by which sent few boys to university and would not have dreamt of sending anyone to Oxford or Cambridge."

He dealt mainly with Nottingham, the local university and Mr Cockerill went there to take his external London University degree in history.

His studies were interrupted by five years of war. When it was over, he was tempted by the idea of going to Oxford and could have done so had he been prepared to start his degree again. But he was 21 and in a hurry to get on. The traditional academic life did not attract him though he did think about a job in adult education in an extramural department. Even after he joined the civil service he did a little lecturing for the Workers' Educational Association.

The collective career structure of the civil service appealed to him and he has found most of the jobs he has done there fascinating. He says that people in other departments remark how involved their colleagues in the DES become with education itself. "It is a tremendously difficult not to become absorbed by something so important."

Most of his career has been spent in building bridges, between handicapped children and non-handicapped children, between immigrants and the rest of the community and between public schools and the maintained sector. In the case of multi-racial education he feels the results are not entirely discouraging. In the case of the public schools the bridges collapsed completely.

The Public Schools Commission was important because he believes there is a division in society. Universities, he says, are probably one of the places where fusion of the different elements happens and the division breaks down. Another job outside the department was as joint secretary of the Schools Council.

He served in the private office of

three ministers: Lord Boyle, Mr Hogg and Anthony Crosland. He remembers 1963, the year of a trip, with particular pleasure. "There were great rallies at Albert Hall and a resurgence of interest in education. One of the things I remember is an unusually enhanced popular interest in education."

Like an intensely political man, though he has never been to be political in the party sense, you need strong antennae to tell you what is what and what is not. In my education he feels there are many things.

Despite his enjoyment of the DES he clearly retains the prospect of a job which may be not unattractive to him. He also looks forward to meeting people from the university and has already sampled their visits. However, he does not have strong interests as his predecessor, John Cuswell did. He has found negotiating with the university's Audio-Visual Aid Unit. The spoken commentary consists in part of a minimal narrative asked out by readings from letters and diaries written by some of the participants in the films.

The film is designed as a teaching aid to illustrate facets of the social, domestic and administrative life of the British community in India, and to contribute to the debate on the use of film in the teaching of history and related social studies.

It is available for sale (£100) or hire from "Films from the Raj", 22 Kilgrave Terrace, London W2 5LX, and is accompanied by a booklet listing the film used and containing teaching notes and a bibliography of suggested further reading, prepared by C. A. Bayly.

The product of this planning and production is a film which provides a fascinating picture of the work of the male members of the British community in India, almost all of them engaged in administrative or technical/scientific support work in the service of the Indian Government.

The film is a tapestry of their lives and families, and of the way in which, while their private life remained rigidly encapsulated in all-British enclaves, they were in continuous contact with Indians in their work.

The film includes several sequences of tours and visits by members of the medical, agricultural, engineering and political services. It shows the British provision of railways, water and hydro-electric power.

This production sheds little or no light on Indian nationalism or politics, and is not intended to. But as British opinion has hardly even begun to come to terms with its imperial record and experience, its even balanced approach should be of considerable use to historians and teachers of history who seek to guide and influence that process.

Such people exist, at least in the United States. Looking for such as the Brookings Institution, the Congressional Budget Office, the policy analysts employed by the various government agencies, Professor Wildavsky is a real community of people coming into being.

We have a long way to go. Britain, but—Professor Wildavsky is modest enough not to say so directly—we could do a lot more to emulate the growth of public policy in the United States.

Another major element in the British equation is what we have academic entrepreneurs like Professor Wildavsky who are at Russell Sage, all the signs that he will fulfill the ambitions for a revival of social scientific research in Britain.

At Russell Sage, all the signs that he will fulfill the ambitions for a revival of social scientific research in Britain. Douglas the sociologist is a variety of natives of Orleans speaking spontaneously.

The authors, Patricia Biggs and Mary Dalwood, dislike the artificiality of "standard" French and believe that the use of a wide spectrum of styles is necessary for an understanding of the language and for giving students a greater choice of vocabulary and structures than they would find in the "standard" French.

To achieve this they have selected a series of 25 interviews grouped into topics which allow easy comparison of styles of language and attitudes of speakers. The appearance of certain informants in a recurring one category gives a reassuring sense of continuity and familiarity.

An enormous amount of thought

Educational technology

Films from the Raj cast light on Empire

One of the most surprising by-products of the effort made by the Centre for South Asian Studies of Cambridge University, to build up an archive of private papers and materials relating to the British Empire in India, was the discovery of enormous amounts of "home-movies", 16mm silent films shot on personally owned cine cameras for their own amusement by the British in India between 1925 and 1947. Some 60,000 feet in all of black and white 16mm film have been deposited in the archive.

Mary Thatcher and Victoria Weg-Prosser have now produced a half hour compilation film from this material (just over 1,000 in all), entitled "Films from the Raj", with the aid of Martin Gienke of the university's Audio-Visual Aid Unit. The spoken commentary consists in part of a minimal narrative asked out by readings from letters and diaries written by some of the participants in the films.

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Donald Watt

The author is professor of international history at the London School of Economics.

'Unstandard' French teaching package

Les Orleanais ont la parole in an experimental teaching package produced from documents of an interdisciplinary study of Orleans. Its aim is to teach the French language through the study of recordings of a variety of natives of Orleans speaking spontaneously.

The authors, Patricia Biggs and Mary Dalwood, dislike the artificiality of "standard" French and believe that the use of a wide spectrum of styles is necessary for an understanding of the language and for giving students a greater choice of vocabulary and structures than they would find in the "standard" French.

To achieve this they have selected a series of 25 interviews grouped into topics which allow easy comparison of styles of language and attitudes of speakers. The appearance of certain informants in a recurring one category gives a reassuring sense of continuity and familiarity.

An enormous amount of thought



Some of the activities that went on in the Lower Grounds of Aston Hall, now Aston Villa Football ground, one of the scenes from a recent documentary film Aston Villa made at the University of Aston by Dr Jennifer Tann, reader in economic history and Mr Nigel Hawerley. The film traces the development of the township of Aston built within the old park walls of Aston Hall. It is being made available to other universities, colleges and organizations.

Step by step through the nuclear physics mysteries

Nuclear theory is notoriously difficult to portray. There are only two courses open: the diagrammatic approach and the photographic, showing the equipment associated with nuclear practice. At its heart is a mystery and even pictures showing the eerie blue light given off by intense radioactive materials do not touch the core of the matter.

The first method is exemplified in a new series of slides and filmstrips, *Nuclear Physics*, accompanied by a taped commentary. There are 12 slides in the set, which deals with the atom and atomic mass, radioactivity and its decay, nuclear energy and reactions, the chart of nuclides, detection of ionising radiation, protection and control, nuclear fission and fusion, and nuclear energy.

The second and sixth informants, for example, have nothing to tell us, despite the author's claims to the contrary. A further point is that the accounts by four children, based on pictures, do not represent the spontaneous style of children's language. It might be a good idea for the second volume to get children to describe their holidays, or an event they have all seen. The result would be another style which young learners could profitably study.

An enormous amount of thought

Donald Watt

The author is professor of international history at the London School of Economics.

the maze in such deceptively simple style that it seems but a walk round the hedges.

The set was originally prepared as a training sequence by the education department of the Atomic Energy Research Establishment at Harwell, so it has authority. It is accompanied by *Working with Radiation*, a booklet used to acquaint new employees with necessary personal safety precautions, which brings the whole exercise down to earth.

Each part consists of a single-frame film strip (or 36 double-frame slides), a taped cassette commentary, revision notes and questions: they cost £9.50 (slide sets are £12) from the Slide Centre at 43 Chabuan Road, London SW11. The same company is also offering a set of five strip (or slide) and tape packs under the title, *Digital Computer Fundamentals*, which was prepared in similar style for the same purpose at Harwell.

Owen Surridge

The author is professor of international history at the London School of Economics.

'Race' quotas put polys in classic dilemma

Mrs Thatcher's recent thoughts on the growing impurity of the British nation have ensured the predominance of the politics of race between now and the next General Election. She has rightly been denounced by Labour Ministers for denouncing the political gutter. But unfortunately their own hands are far from clean, as may be seen from the present Government's racist quota on overseas students—the very legality of which is in question.

Since 1975 there has been a progressive worsening of the position of overseas students in this country through successive fee rises and the imposition of a quota system. In late 1976 it was proposed to poll the quota by having entry certificates issued in various tests on an intended overseas students before allowing them into the country. These officers were to have been immigration officials without any particular educational competence. The Government thought twice about this scheme and eventually substituted for it Circular 8/77 which has now imposed the burden of immigration controls on educational institutions themselves, and moreover on the ordinary admissions tutor.

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The basic justification offered is that the London taxpayer is disproportionately subsidising foreign students. Now let us even accept that the childishly simple equation represents the whole truth of the matter. What then should be the logical policy response?

In a non-racist society, central government would automatically spread the burden nationally to compensate for a regional accident. However, in a society increasingly prone to racist perspectives, and moreover in a period dominated by the philosophy of public sector cuts, the DES has failed even to entertain this possibility. On the contrary, it has produced Circular 8/77.

The circular's new category of "specified students" is a hypocritical euphemism, just like the "non-potential" students of the Immigration Act. On Weekend Week recently the Home Secretary accepted the racist reality behind such bland terms, in his comments on British immigration policy. His business was to take a little while to see through into the supposedly nicer world of higher education.

The other post hoc justification of quotas (in the ILEA Chief Education Officer's Report 8050) is that overseas students come for a "British" education, and that this is impossible if they are themselves more than a third of the course intake. Perhaps some ingenious educational administrator will fascinate us in *THES* with an explanation of the peculiarly "British" quality of the second law of thermodynamics. How can the ILEA's education officer seriously propose describing himself as such, and still claim that "the whole character" of a course is liable to change once the magic 33 per cent is breached? If 34 out of 100 students should be Arabs, will the staff teach in Arabic?

In fact, what 8050 insists is that students who have been here without studying full-time for three years and an hour will not change "the whole character" of a course. But those regrettably exposed to two hours' less of "The British Way Of Life", will. The logic of 8050 is unambiguous on this point.

The reasoning behind £50,000 fines for that rebellious colleges must be to whip them into line. For breaking the latest diktat, the educational development of all students is to be interfered with, over and above the DES. It will not have broken the law.

While universities and polytechnics are supposed to first and foremost to apply the quota system, the authorities are in fact coercing them through financial sanctions. Different forms of pressure are being applied in different sectors.

The universities, with their power autonomy, were asked by the UGC last month to increase British undergraduates by 3 per cent over the next three years at the expense of foreign students and home post-graduates. This shift, to home undergraduates is to take place in the context of a general rise in university student numbers. The sting in the tail is this: the government will not compensate universities for the general rise in student numbers if they contravene the overseas students quota.

Much more direct is the approach taken to the polytechnics, and at the moment a crucial test case is being fought out between the ILEA—the national packman in applying the quota system—and Thames Polytechnic's own Court of Governors, that some overseas students might not have paid their fees. This panic (worth about £50,000 at its utter emergence) was amplified in conduct tests on an intended overseas students before allowing them into the country.

From such trivial beginnings has grown the current crop of policies, now accorded the dignity of "sound educational reasons" as well as the endorsement of Mrs Williams and the DES.

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Three months to answer Mr Oakes' 14 questions

After Mrs Shirley Williams's 13 points, Mr Gordon Oakes's 14 questions. Even after a gap of almost nine years this comparison between the two policy-making exercises is bound to be made. Indeed the reappearance of some hardly perennial (two-year courses, more part-time students, and a gap between school and higher education) nukes the resemblance a little unbecomingly. For the benefit of the more nervous and the more cynical the discussion document also mentions some even less attractive ideas, like a further reduction of seven per cent in accommodation standards and staff/student ratios and the wholesale employment of temporary academic and other staff.

Without much warning higher education has been precipitated into a debate about its future which is really more important in its implications for the public sector of higher education last year. The time available for this debate is frighteningly short. Organizations have been given until the beginning of June to present their considered views. It seems quite out of proportion that only three months should be allocated to the discussion of the fundamental issues raised by Mr Oakes in his 14 questions while the deliberations of the committee examining the management of the public sector of higher education, chaired by the same Mr Oakes, should be extended over a year. Yet there is no choice. The hand of the Treasury is already poised to pencil in a figure for the public sector of higher education in 1982-83, the first year of the peak. The PES cycle will soon begin again. If higher education wants to have some say in its own future, it will have to hurry.

It is difficult to exaggerate the need for universities, polytechnics and colleges to respond quickly to Mr Oakes' invitation. The decisions about the public sector to be allocated to them in the next six years are all but taken—but these decisions are a mess. On the one hand it seems almost certain that higher education will have to accommodate the student "hump" of the mid-1980s with its present plans. The approval, planning and construction of new buildings takes several years so the only other way would be to rent existing ones—but this is hardly feasible for "green fields" universities because of geography, and for city-centre institutions on grounds of cost.

On the other hand the Government's present policy, confirmed in the recent public expenditure White Paper, is to allow for an increase in the number of academic staff to match in full the likely increase in students—hence the almost obsessive interest in demography and participation rates. This contrast between capital and current expenditure is the result not of the deliberate and considered policy of the Government but of the different timetables that determine these two forms of spending. Capital expenditure is planned over longer periods and the present level reflects the harsh economic climate that prevailed in 1974 and 1975. Current expenditure has a shorter planning life and so reflects the rather brighter climate of the last two years. Piece-meal planning, often by default, simply cannot continue, as the DES has recognized by publishing *Higher Education into the 1990s*.

But it is equally important that the response of higher education should be both critical and positive. Universities and polytechnics at all costs must avoid being caught in the demography trap that ensured the colleges of education. They must make it very clear at the beginning of this exercise that in their judgment any connexion between the number of 18-year-olds and demand for higher education is spurious. Whatever else this

present exercise in higher education planning becomes, it must not be allowed to be a re-run of the college of education closures with the new institutes of higher education and even the weaker polytechnic student shift in the participation rate among 18-year-olds can mean the difference between a 14 per cent expansion of higher education and a decline of 11 per cent. This yawning margin of error is made even more alarming when it is remembered that the participation rate has moved in an erratic and inexplicable way over the past 10 years.

The truth, of course, is that demand for higher education is deeply influenced by other Government policies, on employment, on incomes, and—above all—on secondary education which is mentioned only briefly in the discussion document. The case for positive prescriptive planning instead of the essentially descriptive planning that destroyed the colleges of education must be pressed by universities, polytechnics and colleges with all the influence they can command in the coming debate.

But their response to Mr Oakes must also be positive. The consequences of the largely negative response of the universities to Mrs Williams's 13 points in 1969 should be a warning. Many, perhaps most of Mrs Williams' points were unacceptable to the universities. But by and large they failed to propose an alternative strategy. So instead of accepting a clear policy, they were forced to ensure an unplanned erosion of traditional standards that in the long run may have been more damaging, both to the fabric of universities and to their public reputation.

In a similar way higher education may decide that the answers to most of Mr Oakes's 14 questions (for example, the abandonment of the Robbins principle on access) must be in the negative. But if nothing concrete is proposed instead, the same fate may overcome the system. There can be little doubt that in the absence of reliable alternatives the DES, its arm and its Treasury, will have to choose some combination of models B (restricting expansion) and C (expansion on the cheap). For higher education, of course, this would be the worst of all worlds: access would be limited and standards eroded still further.

Mr Oakes has already said that his hoped-for model will be chosen. This would enable higher education to smooth over the decline in the number of their primary customers, 18-year-old school-leavers, by appealing more to secondary customers, such as adults with less formal qualifications for entry. But the choice of this model depends on much, perhaps more, on the reaction of higher education as on the views of the Government. Universities, polytechnics and colleges must do two things: they must demonstrate that a pool of alternative students exists and they must convince the Government that they are serious in their intention to tap it.

Continuing education is a frighteningly nebulous concept—certainly far too nebulous for a Treasury minister or official with a much more concrete guide to policy to hand in the shape of the known birth-rate. A great effort must be made to clear away the fog so that the sharp outline of an alternative policy can be observed. Of course, the final choice must be a large, diverse and democratic system of higher education rather than a smaller, more uniform and traditional system tied inexorably to the ups and downs of demography. But whether it is chosen depends first on the vision and imagination of higher education itself and only second on the decision of the Government.

LETTERS TO THE EDITOR

Overseas student quotas

Sir,—We were interested to read the comments made by the dean and members of the faculty of social sciences and humanities at Thames Polytechnic (*THES*, February 17). It would seem, however, that the overall situation is worse than they suggest. As well as the fundamental moral objections that can be made, the proposal to reduce the number of overseas students to the level of 1975-76 could, contrary to the expressed wishes of Shirley Williams, result not only in a reduction of educational facilities for British students but also in a net loss of revenue to the country. The damage to many regions, though difficult to calculate precisely, could be considerable unless more thought is given to the matter.

In County Cleveland, a large and expanding conurbation with only one institution of higher education, the effect of implementing paragraph 7 of Circular 1/77 could lead to the closure of a dozen courses or more—many of which are in the important areas of science, technology and engineering. Such a loss would represent a substantial diminution in the academic facilities of the area.

Worse than this, the loss of educational opportunities for local students would be compounded by an economic loss that would affect the whole area. Overseas students, as well as contributing to the cultural and social life of the community, are an important group of consumers. Unlike the tourist, visiting for perhaps a month and spending two or three hundred pounds, they are with us for most of the year and spend two or three thousand pounds. The loss of these people as well as the cost of closing down courses (redundancy payment for staff, unemployment benefit, etc.) makes a nonsense of a policy concerned with economics and efficiency.

The situation facing Teesside Polytechnic, and County Cleveland generally, is very serious but it is not unique. However, the little that is said about the problem is too often simplistic and misleading.

CCETSW's position

Sir,—That there has been an exchange of letters between the director of the Adult Education Council and the director of the Central Council for Education and Training in Social Work, is public knowledge. In your recent editorial you have raised this to the level of "a dispute". There has been no dispute so far. Nor has the council insisted that there must be a precise 1:10 social work staff/student ratio.

In view of the fact that the contents of my letter to the director of October 19th, 1977, seem to have become public knowledge (neither the director nor I know how), I had better quote exactly what I said: "The council plans to produce a statement before too long arising from a recent enquiry it has undertaken regarding resources in social work courses. In the meantime, the council continues to expect an SSI of about 1:10 social work teachers to social work students, though it recognizes that variations will occur within narrow limits."

I then went on to explain some of the reasons why such variations occur.

The council has been forced to maintain this general position because of the dispute which exists between the council and the Pooling Committee with whom, it seems, no dialogue is possible. Social work courses have been included since 1971 in the Group 2 faculties, whereas the council has always claimed that they should be in Group 1 faculties, where, for example, health visiting courses and many others which involve the equivalent of laboratory work, are included, and which are often in the same departments as social work courses in polytechnics and further education colleges. Many efforts have been made by the council, the Joint University Council on Public and Social Administration

It is time for a more informed debate to take place. Yours faithfully, DAVID TAYLOR, SYDNEY ELMS, W. H. CROUCH, GEORGE BAIN, BRIDGE, A. R. WATSON, D. J. LAM, JOHN CURRIE, C. SMITH, J. ELTON, D. CARTLEDGE, D. H. ARTHUR, W. M. JENKINS, Teesside Polytechnic.

Sir,—The question of autonomy of polytechnics in inner London is not the only matter for concern in the current HEA activity on overseas students. Its insistence that from 1979 the proportion of overseas students on individual courses should not exceed 25 per cent, with 33 per cent maximum for the whole institution, shows an ignorance about the process of admission of students which is frankly rather worrying.

In polytechnics there is no closing date for admissions nor is there any formal knowledge of the state of an applicant's attempts to secure offers at other institutions. Consequently applications are received, and offers made, throughout the year but admissions tutors have no guarantee that accepted offers will produce enrolled students. In many courses the number of offers accepted, even after a level results have clarified the picture, bears no relation to the numbers—and, more confusingly, names—of students starting the course a few weeks later.

This change from the admissions picture to enrolment facts shows greater movement among United Kingdom applicants than overseas. Consequently an admissions tutor could have restricted his offers to U.K.A's limit but could find that the 25 per cent overseas offers turned out to form a far higher proportion of the enrolments. To delay making offers to overseas applicants until the United Kingdom picture is becoming clear in mid-September would prevent any overseas applicant from being able to come at all.

The HEA's attempt to restrict numbers is unwelcome in any institution which operates a responsible admissions system. Yours faithfully, HARRIE GILLENWAY, Director, Academic Registrar, The Polytechnic of North London.

Other organizations and individual institutions, to persuade the Pooling Committee to change this position. Not only have these efforts been to no avail, but the reasons for the decisions have never been given and there seems to be no mechanism by which this dispute of this type can be considered other than by putting a long written case and receiving a short answer.

The Middlesex Polytechnic has resolved the situation for the time being in ways which are sufficiently satisfactory to the council to avoid the matter rising to the level of a dispute. No doubt the issue will arise elsewhere. Most polytechnics have managed so far to cope with the situation by applying the Pooling Committee's norms to institutions as a whole rather than to specific courses and in this way have been able to sustain an adequate staffing ratio for social work courses. There is, however, a good deal of evidence to suggest that social work teachers remain among the busiest of polytechnic staffs. The council recognizes that social work education cannot be exempted from the effects of financial constraints with their effects on patterns of teaching but the main argument is about the bare line against which such constraints should be applied.

"The art of the possible" applies to negotiations between the council and the educational institutions. It knows full well the value of pressure and also the dilemma created for heads of institutions and their academic boards when they are caught between conflicting pressures. Such is the life of senior management, and for one, who, as experience similar pressures, would not have it otherwise. Yours sincerely, R. C. WRIGHT, Assistant Director, CCETSW.

Redundancy

Sir,—The plight of Eric Sengren, the senior lecturer made redundant because of college of education cutbacks and whose experience of unemployment was starkly reflected in *THES*, February 17, is deserving of every sympathy. There is however a group of lecturers affected by the college closures whose future may be even more dismal. At least Mr Sengren can expect as compensation an annual ex-gratia payment of £3,000. His colleagues under the age of 40, many of whom are equally well qualified and who may have had senior posts in schools to earn teacher training can look forward to compensation of less than half this amount.

For such lecturers Crompton's comment cannot be, as Simon Midgley writes, "a satisfactory consolation". They too are covering the difficulty of acquiring alternative posts, of a similar status or otherwise, in a highly competitive and diminishing market.

Should the younger lecturers be employed by an education authority, the universities are more than just conspicuous. They are not instruments of social and economic policy; but they do have impact. If this is to assist the British of the future, then the whole university system must be adequately funded as of now it is not. As of November last, the Secretary of State for Education and Science announced a plan for universities of 310,000 students in Great Britain by 1981-82, a figure that looks likely to be 10,000 short of the actual student demand; it ought to be reached and probably exceeded. Given past funding, it is particularly appropriate to the universities' capabilities.

However, it is also a figure that the universities will simply be unable to reach with the sums provisionally indicated down to 1980-81. Unless the prospective expenditure is increased by up to 15 per cent, there are young people for O and A levels as well as mature and part-time students who will never gain entry to university—in spite of their qualifications. By the same token, serious research is also at risk.

The Government is right to raise the universities' sights but all sincerely it must pay for their attainment. The announcement made in mid-January by the Minister of State that new levels of grant are currently being prepared, calculated for the 310,000 target, is therefore very welcome. Everyone must hope that the Government will agree to meet just as satisfying.

An alternative that has been canvassed for the years ahead is "tunneling through". Britain's demographic development dictates that the crude number of 18-year-olds will go on increasing till about 1982-83 and then into decline until a possible return sometime in the 1990s. Since the argument runs, the proportion of 18-year-olds entering universities is not likely to increase, what is necessary between the late 1970s and the late 1980s is a holding operation. The universities can enrol larger numbers of students, but more social scientists and simultaneously take additional research commitments without a proportionate rise in their finances. They can "tunnel through" and not emerge enlarged into the trough at the other end. In economics, high-minded as well as mean, it is an attractive proposition.

Nevertheless, it is as false as it is short-sighted. Among social groups one and two, which currently supply a majority of university entrants, this age-band is demographically certain to hold up. In general, too, the proportion entering universities has been increasing and is likely to go on doing so. The benefits expected of comprehensive education should themselves be sufficient to ensure this. More children from the other social groups will rise through the system to A levels; and with the likely introduction of the new N and F system, more of them will meet the necessary entrance requirements.

On present showing, the proportion of 18-year-old women electing for the universities seems likely to go on growing. And given prospective social policies, the percentage of 18-year-old immigrants proceeding to university can only increase. The generalized nature of the N and F-level system will also necessitate increasing the length of some degree courses, which will raise the numbers attending universities as distinct from those entering.

In any case, it is backward-looking to confine the argument to youngsters. Quite apart from institutions such as the Open University and Birkbeck College whose *raison d'être* is the part-time education of mature students, most conventional universities now take a higher proportion of older undergraduates than 10 years ago. It is precisely in the 1980s that the first Robbins era graduates will reach their forties and stand in need of educational resourcing. And the change in demographic balance between the school leaving and conspicuously older cohorts may

well demand some quite extensive re-education of the middle-aged.

Supposing, however, that the unlikely materialised and the hump did come to an end, it would not have been financially imprudent to give the universities the resources for surmounting it. The universities have their own demographic trends. And it is just when the "tunnelers" imagine that the lump will start to pass that academic staff appointed in the years after the war will begin to retire. It is perhaps about the same time that many senescent university buildings will require to be pensioned off. So if a financial cut-back were then required, it could be achieved in a relatively painless way.

The government, of course, has its immediate problems; and it is difficult for it to make long-term commitments. But the issue should not really be viewed as piling sums of money in the short run, but as the universities, their paymasters, their beneficiaries, their beneficiaries, and the involved community thinking together to maximise the contribution the universities can make to Britain's long-term future, saving now. Winterer encourages us not to despair; but it will bring the opportunity to improve the kind of society we live in and enrich the heritage we leave behind.

There are signs that the government and others are coming to appreciate this. It is therefore not unreasonable to suggest ways in which the opportunity might be used to indicate how the expansion of the Robbins period might be continued and consolidated, and how it might be accompanied by a measure of reorientation.

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But the argument needs to be considered at a higher level. The usefulness of a doctorate for subsequent employment in industry and agriculture is sometimes questioned. At the end of the day it remains true that launching graduates on to a piece of independent research is a first-class way not only of whetting their appetites for later commercial research but also of producing a great many ideas of immediate value.

On the other hand, to develop more taught courses at the master's or even the doctor's level, to produce more doctorial programmes that integrate courses with research, would recognize the reality not only that fewer postgraduates are likely to remain in academic research, but also that outside employers will increasingly require young men and women who are trained more fully

Universities and the future of Britain

by William Wallace

The universities can adapt and economise. But there are certain jobs they need to do that cost money. Producing an extra 4,000 sociologists a year would be cheaper than the present 4,000 doctors and dentists but hardly as comforting to their patients or as beneficial to public health. An additional 8,000 librarians would clearly cost less than the present 3,000 engineers and technologists, but would do little for the future of the British industry, however much they might do for its past. And doctors, dentists, engineers, and technologists educated on a half load of out-of-date equipment would be only slightly less disastrous. So too with research: energy cannot be coaxed from the waves or heat from the sun on a broken three-cent budget.

The point is that in social and economic terms, the universities are more than just conspicuous. They are not instruments of social and economic policy; but they do have impact. If this is to assist the British of the future, then the whole university system must be adequately funded as of now it is not. As of November last, the Secretary of State for Education and Science announced a plan for universities of 310,000 students in Great Britain by 1981-82, a figure that looks likely to be 10,000 short of the actual student demand; it ought to be reached and probably exceeded. Given past funding, it is particularly appropriate to the universities' capabilities.

However, it is also a figure that the universities will simply be unable to reach with the sums provisionally indicated down to 1980-81. Unless the prospective expenditure is increased by up to 15 per cent, there are young people for O and A levels as well as mature and part-time students who will never gain entry to university—in spite of their qualifications. By the same token, serious research is also at risk.

The Government is right to raise the universities' sights but all sincerely it must pay for their attainment. The announcement made in mid-January by the Minister of State that new levels of grant are currently being prepared, calculated for the 310,000 target, is therefore very welcome. Everyone must hope that the Government will agree to meet just as satisfying.

An alternative that has been canvassed for the years ahead is "tunneling through". Britain's demographic development dictates that the crude number of 18-year-olds will go on increasing till about 1982-83 and then into decline until a possible return sometime in the 1990s. Since the argument runs, the proportion of 18-year-olds entering universities is not likely to increase, what is necessary between the late 1970s and the late 1980s is a holding operation. The universities can enrol larger numbers of students, but more social scientists and simultaneously take additional research commitments without a proportionate rise in their finances. They can "tunnel through" and not emerge enlarged into the trough at the other end. In economics, high-minded as well as mean, it is an attractive proposition.

Nevertheless, it is as false as it is short-sighted. Among social groups one and two, which currently supply a majority of university entrants, this age-band is demographically certain to hold up. In general, too, the proportion entering universities has been increasing and is likely to go on doing so. The benefits expected of comprehensive education should themselves be sufficient to ensure this. More children from the other social groups will rise through the system to A levels; and with the likely introduction of the new N and F system, more of them will meet the necessary entrance requirements.

On present showing, the proportion of 18-year-old women electing for the universities seems likely to go on growing. And given prospective social policies, the percentage of 18-year-old immigrants proceeding to university can only increase. The generalized nature of the N and F-level system will also necessitate increasing the length of some degree courses, which will raise the numbers attending universities as distinct from those entering.

In any case, it is backward-looking to confine the argument to youngsters. Quite apart from institutions such as the Open University and Birkbeck College whose *raison d'être* is the part-time education of mature students, most conventional universities now take a higher proportion of older undergraduates than 10 years ago. It is precisely in the 1980s that the first Robbins era graduates will reach their forties and stand in need of educational resourcing. And the change in demographic balance between the school leaving and conspicuously older cohorts may

well demand some quite extensive re-education of the middle-aged.

Supposing, however, that the unlikely materialised and the hump did come to an end, it would not have been financially imprudent to give the universities the resources for surmounting it. The universities have their own demographic trends. And it is just when the "tunnelers" imagine that the lump will start to pass that academic staff appointed in the years after the war will begin to retire. It is perhaps about the same time that many senescent university buildings will require to be pensioned off. So if a financial cut-back were then required, it could be achieved in a relatively painless way.

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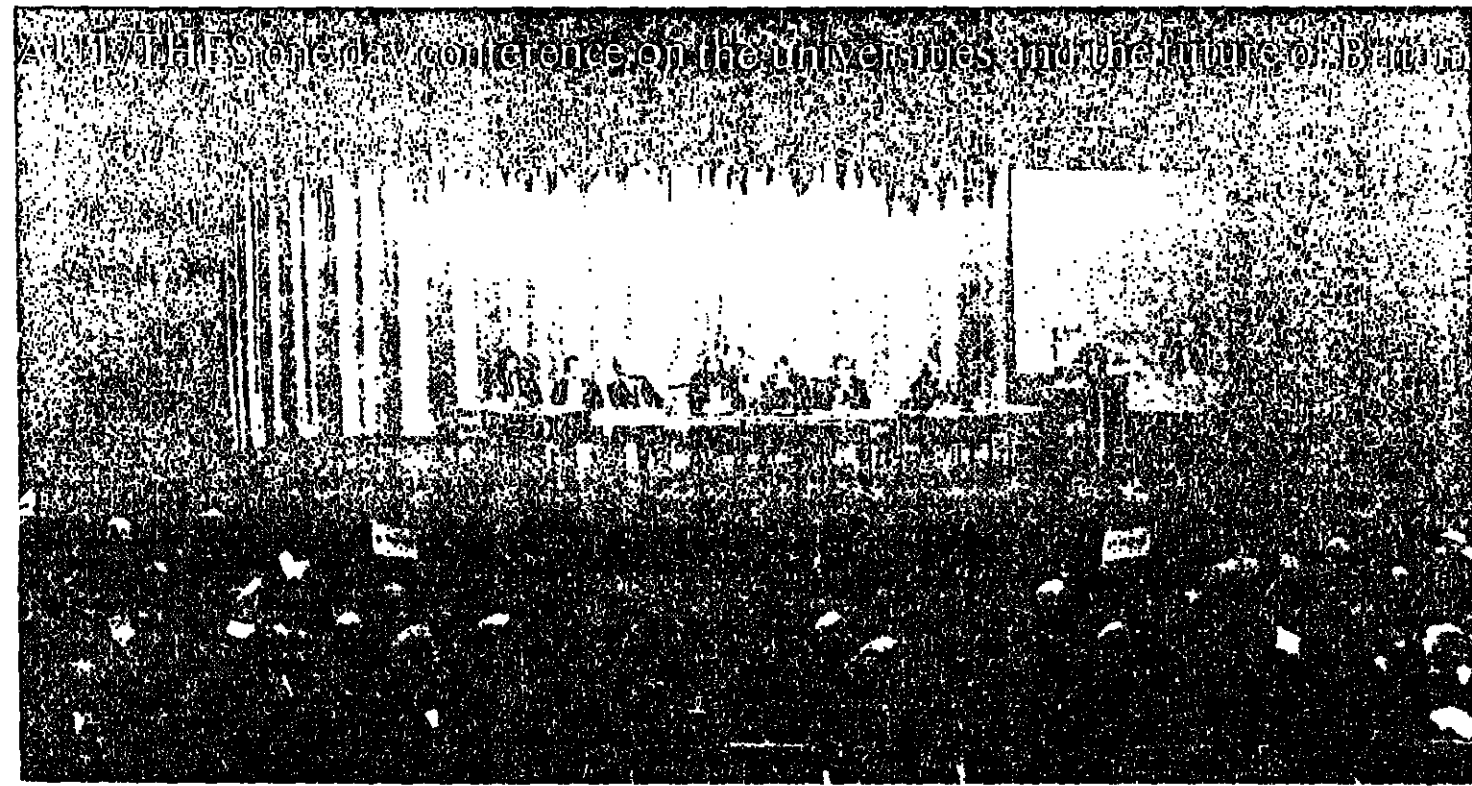
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The conference was held at the Institute of Education, London, on Thursday, February 23.

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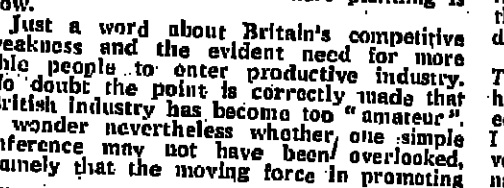
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The author is professor of history at the New University of Ulster.

mother, rather significant, change comes in the management of departments. If the head of a department is at all typical, perinatal headships are on the way towards becoming the exception and there is a growing trend towards a more collegiate approach with the head of department con-



Since the war there have been established a strong position in entirely new areas — the management of social services and business — and a proportion of British youth is receiving the highest formal education, here receive their professional, at the hands of the American.

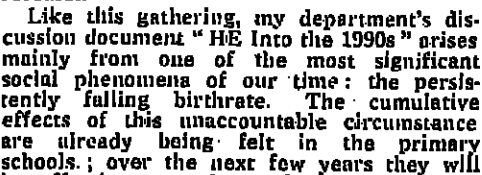
Secondly, universities are centres of excellence in research; particularly in the natural sciences and also, of course, in the social sciences and human sciences. On a perhaps fanciful and even 'utopian' plane the American sociologist, Davis, in his prediction of the future which he calls the position of industrial society, sees 'knowledge' in its broadest sense occupying the kind of crucial

When Lord Keynes published his *General Theory of Employment* over 40 years ago, he said in his preface that "it is my fellow economists, not the general public, whom I must first convince". It isn't hard to verify that some of the beliefs which dominated economic policy today

Before I close, here are just two more points about research. The very high cost of much sophisticated equipment nowadays, and the fact that some research is the buy-

to suppress the creative part of himself", and the same thought must sometimes arise in the mind of a research worker in industry. It is the privilege of the university that he never has to suppress the creative part of himself, and I believe that it is both morally and practically important for Britain's future that this should go on being true.

Lord Boyle is vice-chancellor of Leeds University.



be affecting secondary schools, and it will be the turn of IIE in the early 1980s.

14.2 per cent in 1972; this is in sharp contrast with what was envisaged in the 1971 White Paper for example, when the rate was expected to increase to 22 per cent by 1980 with still further growth beyond then. The overall growth of student numbers to the present 520,000 has therefore been mainly due to the increase in 18-21 age group since 1969.

As to the immediate future, we already know that the 18-year-old population will

add to this list. But the certainty of a drastic decline in the 18 year old population is of fundamental importance to every facet of higher education provision, and we believe it is therefore essential to put this under the microscope immediately.

We need a good response to make sure we get the most out of this exercise, and

Together, these factors—the need to sustain the momentum of essential technological advance, and the need to accommodate ourselves to the considerable social change which brings in its train—make up a great part of the challenge we face, but they also hold out the prospect of the rewards which can be reaped by the search for the best way.

The trouble is not simply that we have been unable to achieve any kind of synthesis about the changes that higher education and the universities have experienced in the last 10 or 15 years, but we do not even have the institutions, or the forum, in which the attempt to achieve such a synthesis can be made. In fact the traditional institutions for

so great that the case for a policy institute for higher education is so powerful. As practical footnote, it is clear that when maintained higher education committee established following the report of Mr Oake committee, the pressures to coordinate a total system of higher education will become greater.

However I do believe it could work. It could help us to break the communication blockade and to break out of the political sclerosis that seems to afflict higher education and the universities but in a way that lets all their autonomy intact.

If it were not for the need for convenience of reference, it would be more accurate to refer to it in terms of the needs of the student, both actual and potential; these, of course, are not identical. The present provision that has grown up to cater for many of these needs is similarly diverse, taking

BOOKS

Energy flow

Energy and the Living Cell: an Introduction to Bioenergetics by Wayne M. Becker. Blackwell Scientific, 6.10 ISBN 0 397 47368 0

Cell Biology (second edition) by E. J. Ambrose and D. M. Easty. Nelson, £5.95 ISBN 0 17 771033 0

Cell Membranes and Ion Transport by J. L. Hall and D. A. Baker. Longman, £3.50 ISBN 582 44192 7

Although all these books claim to be either introductory or suitable for introductory courses they really represent the extremes of the range of books now being aimed at the undergraduate market. Only one is a true introductory text in the sense that it is trying to introduce a subject area, bioenergetics, that students may not have met before or may not have recognized as a coherent body of knowledge. The second is a standard textbook in cell biology and aims at providing the student with the fundamentals of this expanding area. It is a very useful book for those who need some understanding of cellular processes without going very deeply into particular topics.

The third book, on the other hand, deals with a strictly limited subject area and needs some background knowledge to be understood. It is one of a series, a new type of student text that has become very popular. These are short, inexpensive paperbacks, covering very specialized and not necessarily related topics, and usually written by a well-known expert. They are becoming a serious challenge to standard textbooks as the student or teacher can choose a number of them and produce his own textbook to suit his individual needs.

Becker's book is an introduction to bioenergetics and brings together a wide range of material that should make it very useful for anyone studying the subject. The first part deals with energy flow in matter generally and in biological processes, specifically, and includes a rather elementary account of enzyme catalysis. The second part gives an account of energy sources and deals with anaerobic and aerobic energy metabolism, fats and proteins as alternative energy sources, and photosynthesis. In the final section Becker considers the manner in which the cell utilizes energy. Biosynthesis is illustrated by the synthesis of molecules such as glucose and nucleic acids and there is a detailed account of protein synthesis. The emphasis on transport across membranes and mechanical work is explained by reference to muscles and flagellae.

Although much of the information can be found in most biochemistry or cell biology textbooks, particularly the detailed accounts of metabolic pathways, the manner in which it is presented and related to energy makes it a valuable undergraduate text. Explanatory diagrams are fully used and at the end of each chapter there is a series of

problems with the answers in an appendix.

Cell Biology first appeared in 1970 and this second edition has been substantially updated. It is divided into five parts covering an introduction to the subject, the structure and function of cellular components, the cell cycle and elementary genetics, developmental aspects of cell biology, and the biology of viruses and bacteria. This edition has been expanded to include those areas where recent advances have been most rapid. In the chapters on the cell surface, for example, new sections have been added on techniques for studying cell surfaces, the dynamic nature of cell surface organization, and the fluid mosaic model of cellular membranes. This model would appear to be one of the most popular in biology at present as Singer and Nicolson's diagram of it is the only common feature of all three books.

The chapters on developmental biology have also been expanded with new sections on the relationship between genetics and development, cellular interactions at later stages of development, and the development of plants, which should make the book more acceptable to biologists. Other topical subjects include reverse transcription, the autotrophy of chlorella, and mitochondrial, human genetics, and a consideration of the use of models in aid of understanding the functioning of macromolecules. The integration of structure and function is emphasized throughout the book, and its only real weakness when compared to its many rivals is the lack of original micrographs and the quality of those that are used. However, its low price makes it an excellent value for money.

Hall and Baker's book is the second volume in the series, "Integrated Themes in Biology". The first volume on *Evolution* by Dennis P. Scott is very high standard which is maintained in this new book. It describes the structure and composition of cellular membranes and the passage of ions across them and although it claims to be an introductory text it is more likely to be used by final-year undergraduates and postgraduates who already have some familiarity with the subject.

The opening chapter deals with membrane structure and gives brief accounts of membrane proteins and lipids, their arrangement in the membrane and also membrane dynamics. This serves as an introduction to the main theme of the book which is an analysis of the forces involved in the transport of ions. The kinetics and thermodynamics of ion transport are presented in a straightforward, mathematical manner, and the principles governing these processes are explained. Passive movement and ion selectivity are considered with accounts of permeability, carriers, ionophores, and membrane versus cytoplasmic selection, as well as a transport linked to metabolism with descriptions of the sources of energy, ATP-driven transport and the sodium pump. The final chapter illustrates these principles and concepts by a detailed analysis of two specific transport systems, ion transport in plant cells and the cotransport of organic solutes with sodium ions in animal cells.

D. J. Beadle

Cryptic mastery

An Introduction to Stochastic Processes with Special Reference to Methods and Applications (third edition) by M. S. Bartlett. Cambridge University Press, £12.50 ISBN 0 521 21585 4

The theory of probability deals with calculations about uncertainty and is now widely recognized as an intellectually rich and practically important topic. A portion of that subject deals with evolving systems governed by probabilistic laws: such systems are called stochastic processes.

The study of these began in the late nineteenth and early twentieth centuries with such investigations as Markov's statistical examination of Pushkin's works, some aspects of the kinetic theory of gases, calculation of the probability of extinction of a surname via the descendants of a given individual, Einstein's theoretical study of Brownian motion, and Erlang's theory of congestion in telephone exchanges. In the 1930s the mathematical basis for a general theory of stochastic processes was laid but it is only more recently that the full depth of the theory and the breadth of the potential applications have been realized. These developments are one facet of an appreciation that advanced mathematical ideas can be applied in many fields other than the physical sciences, important though the latter applications remain.

Mathematical education is typically very conservative in content, largely no doubt because of the highly specialized form of most modern mathematics. Stochastic processes are one field where material has passed in 20 years from research literature into the second and third-year undergraduate syllabus in many institutions.

Professor Bartlett was one of the first workers in the United Kingdom to see the interest and importance of the subject and he has had a major influence on its development, having contributed concepts and techniques of wide importance. When the first edition of this book appeared in 1953 it was the only book on the applied mathematics of the subject and while there are now many books at all levels of mathematical elaboration, Bartlett's remains unique in breadth and pungency. Although called an introduction, it never was, and is not, an easy book to read. It is, though, a book to return to over the years always with admiration for the author's cryptic mastery and insight. It is thus a book for the research worker and university teacher.

The present third edition differs from the second (1966) by the addition of about 10 new portions on recent developments. These range from some new material on diffusion processes to some aspects of models for spatial processes arising in physics and biology.

D. R. Cox

Man-made fibres

Formation of Synthetic Fibres by Zdzislaw K. Walczak. Gordon and Breach, £19.70 ISBN 0 677 04490 9

Robert Hooke, discussing in 1661 upon the vital functions of the animal, was probably the first to speculate that "an artificial chemical composition" might be discovered from which "it were certainly an easy matter to find very small ways of drawing it into small wires, for use".

The successful large-scale realization of this vision occurred more than 200 years later with the emergence of the rayon industry which transformed woodpulp cellulose into man-made fibres, and thereby, for the first time, released humanity's needs for textiles from total dependence upon fibres of plant and animal origin. The social and economic consequences of these advances—and of the discovery and introduction from the 1930s onwards of the wholly synthetic nylon, polyester, acrylic and polyethylene fibres—have been profound. Yet while man-made fibres are often regarded as a triumph of twentieth-century science, the complex physical technologies of fibre-formation were originally devised, of necessity, on a wholly empirical basis by the joint efforts of chemists and engineers, and despite much refinement and development they remain appreciably so to this day.

Expressed in present-day terms, Hooke's "easy matter" comprises the transformation of a polymeric substance from the bulk state first to a fluid condition, either as a solution or a melt, and thence by extrusion, spinning, and stabilization processes to a filamentary form with the molecules permanently aligned along the fibre axis, and with desired dimensions

and properties that can be relied upon to function on periods of continuous manufacturing operation, textile processing and use.

Although an accurate molecular chemistry has existed for a long time, and the physics of fibres and their properties of fibres have been known only in recent years, the two have not been brought together in a book by Walczak (Gordon, Breach, 1976).

The author's attention is directed upon the concepts of fibre formation, especially in spinning, and the main theoretical properties of fibres, their behaviour in spinning, their behaviour in use, and the problems of heat, mass transport, the analysis of variables (more than 20 are implicated, both independent and interactive, in the material and in its progress), the various functional uses of fibres, and the polymer character of the process.

The book is directed at the identification and control of the fundamental physical processes of spinning technology, and therefore not greatly concerned with the engineering design of spinning machinery, and with the materials as chemical entities. The author's tone is one of admirably objective and concise, which is of value to students of the subject.

Isaac Gil

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This study confronts some of the fundamental questions of literary criticism and achieves a bold and original synthesis of Anglo-American and European critical approaches to literature. These are applied to a wide range of literary texts and the result is a fascinating and readable book, accessible to anyone with a serious interest in modern literature.

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—Times Literary Supplement

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Brian Way *Studies in English Literature 69*

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MANCHESTER UNIVERSITY PRESS Oxford Road, Manchester M13 9PL

J. Q. Smith

Elementary probability

Probability and Statistics by A. M. Mathai and P. N. Rathie. Macmillan, £4.95 ISBN 0 333 19056 4

This is yet another introduction to probability and statistics for social science, science and engineering students not specializing in mathematics. It deals with some elementary probability theory giving many examples of discrete and continuous probability distributions. This takes up more than half the book. The remainder includes a little estimation theory, a section on hypothesis testing, a few non-parametric

metric tests, sections on regression and analysis of variance, and finally some of the more common statistical tables.

It is lucidly written and technically competent (which is more than can be said for some of its competitors) and is illustrated with many examples and exercises with answers at the end of the book. But, although it is an above-average book of its kind, it has very little extra to offer than many similar texts. The selling point seems to be a two-sided introduction to entropy measures in the early pages.

BOOKS

The critics' poet



Gerard Manley Hopkins aged 15.

In Extremity: A Study of Gerard Manley Hopkins by John Robinson. Cambridge University Press, £6.90 ISBN 0 521 21690 7

The Language of Gerard Manley Hopkins by James Millroy. Andre Deutsch, £7.95 ISBN 0 333 9616 0

In *New Bearings in English Poetry* Leavis wrote that "for our time and the future" Hopkins would be the only "influential" Victorian poet. Forty or so years after, it would be possible to claim that just as Hopkins wrote as if Victorian poetry did not exist, twentieth-century poetry goes on almost oblivious of his great but narrow genius. Yeats, Eliot, Pound, the reverberations are still with us. Hopkins, who ought to take his place with the poets who created modern poetry, is far less strongly in evidence.

But what his poetry has done is to provoke, since the 1930s, some of the most brilliant and influential twentieth-century criticism. Whether one turns to Leavis himself, to Empson, Winters, Davies, Hillis Miller, or to the specialist critics of Hopkins, one finds that they write with a sharp sense that his poetry presses upon them the issues of modern criticism, particularly the problems of the poetic imagination and the language of poetry. Each of the books under review makes a contribution to these themes.

John Robinson's biographical argument is sensible but is lodged in, rather than fused with, his discriminating critical study of Hopkins's poetry and ideas. Hopkins was neither born between the nations of priest and poet nor was he a Jesuit, but it was necessary to him to live at all times in extremity. The best chapters are on Hopkins's language, and on *The Wreck of the Deutschland*, which perceptively discusses the power of that poem and its disturbing lapses into rigid formalism.

I wish that Robinson had connected this coldness with the argu-

ment of his fine chapter on the importance of Pater, Scus and Parmenides to Hopkins. The result would have been a more integrated book. His refreshingly sceptical on the current tendency to over-emphasize the influence of Scus and is the first critic I know to see fully the importance of the notes on Parmenides to Hopkins's exploration of perception and escape. Hopkins, he says, released himself from Pater's relativism by considering "that stem of stress between us and things" (characteristic Hopkins vocabulary) which enables the mind and its objects to share living but distinguishes the uniqueness of self and other. Yet surely Hopkins's rapturous objectivity and his passionate "catching" of the particularities and forms of "seeing" in things carries with it a sad solitariness and isolation from them as much as a joyous sense of their "chiselledness".

His rush of emotion towards the touch, taste and feel of things is very different from Wordsworth's unbrothered flow of selfhood into the world, and when we say "for our bodies to the wind". The world may be "charged" with being by God, but like an electric current, Hopkins's energy of being has to be forced to jump the gap between himself and what is not himself. It feeds him as it does other lovers, in *The Wreck of the Deutschland*.

James Millroy's meticulous study is now the fullest account there is

of Hopkins's use of language. He admires the linguistic inventiveness of the poetry so much that he does not look beyond his shoes victoriously, and his book shares the rather much-mischievous tendency of some of the contributions to the *Deutsch Language Library* series, but it is a valuable contribution to Hopkins studies. The first section is a fascinating and concise account of the immense scholarly excitement about language and its history in Hopkins's day and defines against it his purism, his interest in dialect, and his conception of "current language" as speech, not the flaccid norms of nineteenth-century prose.

The second section, which is a useful detailed linguistic account of Hopkins's devices for heightening current language, provokes more questions. Hopkins, he says, did not transfer speech directly to his poetry but first considered the norms of a fully detailed linguistic account of Hopkins's devices for heightening current language, provokes more questions. Hopkins, he says, did not transfer speech directly to his poetry but first considered the norms of a fully detailed linguistic account of Hopkins's devices for heightening current language, provokes more questions. Hopkins, he says, did not transfer speech directly to his poetry but first considered the norms of a fully detailed linguistic account of Hopkins's devices for heightening current language, provokes more questions.

His collection's interest, for instance, in words ending in -le with a primitive, consonant feel to them—stickle, griddle, dapple, supple—results in an eclectic, artificial purism which is really the reverse of purism. It led him into a kind of muscular preciseness when he was not being careful.

Hopkins admired Milton (both were passionate pedants) and his affinities with Milton and not with poets who were closer to speech probably explain why he has not been an influential poet "for our time". Like Milton's, his language is an artefact, a made thing, constructed with virtuosity and energy. The reader of his poetry, as John Robinson said of Milton, finds himself in a new language. And he added that, like other lovers, we find grace in its deformity.

Isobel Armstrong

The voice in the wind

The Poetry of Tennyson by Dwight A. Culler. Yale University Press, £10.80 ISBN 0 300 020 848

Professor Culler brings to Tennyson studies wide and easy learning, a personal of the new materials, and a sharp eye for individual poems. After reading Culler's early pages I was enlightened and attracted. The scholar's double perspective is so beautifully managed that we lose a sense of the duality. The book moves easily from the backgrounds of intellectual thought to the literary and biographical context, to the sources in Romanticism and Tennyson's broader reading, to the sounds and words, and to sounds which take us beyond words.

For instance, the critical central concern is with Tennyson's implicit or explicit subject of the poet's poetry, and he guides us through the poems and their changing context, neither obtrusively nor obscurely. The grey magic on the height in *Merlin and the Gleam* may be Swinburne or Zola or a more generalized invocation of the meretricious modern magic, but the poem is read, in itself and in its time, with sense and proportion.

Lucratus in "Lucratus" is the rationalist horrified by an obscene discovery of neglected irrational force, and is appreciated in context: "Too much Mill, Tennyson seems to be saying, has given us Swinburne." Too much of the spirit of 1832 has produced the spirit of 1867. The context is derived from the poem whose imagery of civil war and mobs links it obviously to Culture and Anarchy and *Shadows of the Niagara*. An apparently small but actually huge change of mind

over the word "duty" takes on new meaning in the analysis of words and years. This is poetry with a history.

Culler's learning rests lightly on his reader. He writes in a personal, often almost conversational style, with a full sense of address. He starts with Tennyson's meditations on the word, perhaps precociously foreshadowed at the age of five when he stretched out his arms, declaimed, "I hear a voice that is speaking in the wind" and felt moved to applaud, "I thought it grand". The voice in the wind continued to speak its words and music, in the poet's own name, in imitations which induced a state of trance, or in repeated phrases like "Far, far away", "No more", and "The Passion of the Past". Words are lyrically dwelt on in revivals of memory, stirrings of vision, and nomadic movements away from the seen to the unseen in what William James was to place early in the lower order of mystical experience.

Culler traces the self-conscious theme in many ways, whether in the early brilliant fragment of Elizabethan drama *The Devil and the Lady* where articulate energy and vital vigour contribute to their passions, in the clever salvage of the prize poem "Timbuctoo", or the major poetry. He traces the powers of the poet through each stage of development, but is especially interesting on what he calls the English idyll. (Idyll gets its English second "id" when it is Tennyson's word and not Culler's.) He places them between what he calls the nostalgia and melancholy of youth and the complacency of middle age, appreciates their subtlety, complexity, and moderation.

Barbara Hardy

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Provocative thesis

The English Language in Medieval Literature
by N. F. Blake
Dent, £7.95
ISBN 0 460 10273 7

In this book Professor Blake sets out to correct some modern reading habits and attitudes to language which impede understanding of medieval literature.

He argues that in comparison with modern English, the two important features of medieval English are lack of tradition and lack of precision, both caused by the absence of formal instruction in the language. Words remained less clearly defined than now and being unable to acquire connotative force through literary reference remained as vague stylistic counters instead of carrying localized associations and meaning.

The predominantly negative tone of this approach pervades the whole book, which is unfortunate in a work obviously intended to be useful to beginners in medieval studies. Thus the chapter on parody attempts to persuade us that there is no parody in medieval English literature, the chapter on word-play that there is very little word-play. Although told that there are different 'advantages and pleasures' to be discovered in medieval literature, we remain on the threshold of discovering what they are, or how linguistic study can uncover them. Comments on critical procedures similarly often take the form of proposals for excision—for example, of the terms 'colloquial' and 'speech rhythms' (which are, very oddly, more or less equated with each other).

The chapter on themes, which Professor Blake thinks are the most important components of medieval poetry, is more positive in approach. Themes in this sense are similar to tropes, but more widely defined. It is argued, sensibly, that the content of individual themes is less important than their overall tone and their structural role in a work, and there are some fruitful applications of this argument, especially in the comments on *Gauein*.

There are many other sensible correctives to the excesses and oddities of medieval criticism scattered throughout this book, but the general arguments too often rest on dubious evidence. For example, in support of the claim that medieval writers aimed at elevating style and imitating the sophistication of French courtly literature, but not at exploiting local suggestions, the English translation of *Parzival* of Chrétien de Troyes is credited with the assertion that he 'cannot understand the "sentiment" of his French author'.

He tells us that of sentiment, I understand enough his intent, No woe he besy me to tere.

'He used the words, but he did not appreciate their full significance' is the comment. It is not clear precisely what Professor Blake means by 'sentiment', but it is clear that what the poet means is 'personal experience, feeling' (OED senses 1). He is not referring to French words of exotic flavour and doubtful meaning, but contrasting first-hand experience with second-hand report. Further, we are helped to understand the author's meaning by the fact that the words 'sentiment' and 'emotion' have very strong connotations of their own; they are Chaucerian words used to express a Chaucerian relationship to the experience of love. One could deduce from these three lines alone that the poem is a fifteen-century romance, written under Chaucer's influence. As this book points out, it is on the rock of language that many a critical bubble bursts.

The corrective process is therefore as much applicable to this book as embodied in it. But its provocative thesis will undoubtedly provide food for argument, and in its wide range of examples and topics it affords many shrewd comments on aspects of language and literature.

Jill Mann

BOOKS

Dramatic context

The Lear World: A Study of King Lear in its Dramatic Context
by John Reibetanz
Heinemann, £6.80
ISBN 0 435 18770 8

John Reibetanz justifies contributing yet another study of *King Lear* to the growing shelves of Shakespeare criticism on the grounds that his approach is original, as indeed it is, instead of relating the play to other works written by Shakespeare at different stages of his career, Reibetanz studies it in the context of the non-Shakespearean drama of its time, assuming that 'the dramatic traditions and conventions available to Shakespeare when he wrote *King Lear* were so rich and varied as to constitute an extremely resonant, complex language that he could use to great advantage; and that Shakespeare would have taken the trouble to learn this language'.

Reibetanz considers such aspects of *Lear* as the artificiality of its opening, the emphasis on strong individual scenes and emblematic moments (as opposed to narrative continuity and fullness), and the handling of character and motivation in terms of analogies with the contemporary plays of Jonson, Chapman, Middleton, and so on. In supplying us with this dramatic context Reibetanz is also saving us from what he sees as the lamentable shortsightedness of A. C. Bradley, whose essay on *King Lear* is frequently quoted throughout this book and whose difficulties with the play are attributed to the failings of the late nineteenth-century stage and the cultural predominance of the novel.

Although Reibetanz writes of Bradley with sympathy and respect,

it is as inevitable that his approach to the play will be shown to be superior as that Shakespeare used of Jacobean traditions and conventions will be shown to surpass that of his contemporaries; hence a certain unattractive side of the argument becomes predictable.

In detail, however, he has many fresh and interesting things to say about *King Lear*: I found his discussion of the movement away from chronicle-type narrative in Jacobean plays particularly valuable, as was the treatment of the roles of Lear and Edgar in relation to character. In other plays who assume disguise in order to help reform an erring friend. He is consistently good on the Gloucester sub-plot even when he is drawing comparisons with such unlikely plays as *Flower and the Faithful Shepherdess* (the Shakespeare's Edmund, Clorin in his handling of the mad dimension of the play is full and subtle, balancing the lack of ambiguity in the characters against the difficulty and complexity of the final meaning of the play as a whole).

When it comes to actually seeing good productions of the new Shakespearean plays, Reibetanz discourses we are hardly less deprived than Bradley was (from our experiences in the theatre should make us better able to imagine such productions), so the book has the effect of making one's appetite and leaves one hoping that the theatre will one day rescue *King Lear*.

Ann Thompson

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BOOKS

Making a career

The Collected Letters of Thomas Hardy, Volume 1 1840-1892
edited by Richard Little Purdy and Michael Millgate
Clarendon Press: Oxford University Press, £12.50
ISBN 0 19 812470 8

Although this is only the first of seven volumes, it contains all Hardy's letters which survive from 1862, when he went up to London to train as an architect, to 1892 when the impact of *Tess of the d'Urbervilles* had made him a national and controversial figure. In other words, it covers Hardy's career as a novelist from its earliest formation to the beginning of its final phase.

In terms both of quantity and of what the letters actually reveal, this is a sparse collection. We get very little information about his intellectual development in those crucial years in London when he must have assimilated the radical ideological changes that followed the publication of *The Origin of Species*, and there is not much more sense of the expansion of his social horizons which the move to London and the friendships made in the course of his literary career must have brought about. There is no clue at all about his personal life: nothing is said about the suicide of Horace Moule, for example, and the letters to his first wife tell us nothing about his marriage.

The editors are understandably apologetic about the thinness of the material. They have decided to publish before they are convinced that they have located all the surviving letters because the dispersal of Hardy's literary remains has been so great that to follow up every possibility would have meant an unjustifiable delay. But it seems unlikely that much that is significant will emerge, since, in the first place, there is good reason to suppose that much has been destroyed, and secondly, it is clear that, unlike Henry James, Hardy had neither reason nor inclination to use the letter as a record of impressions and ideas. I think that we ought to be sympathetic and grateful to the editors. The letters of a major novelist ought to be available even when they are not as rewarding as one might have hoped. The only



Portrait of Thomas Hardy.

decision that puzzles me is that they do not reproduce letters intended for publication: they could hardly be more formal than the private letters, and it would have been useful to have had everything in one collection.

This is to talk of the volume as a whole and specifically in the context of Hardy studies. There are occasions which give us discrete insights into Hardy's thinking and these are certainly worth having. The comments about the nature of woman which emerge in correspondence about Bathsheba and Tess, and thoughts about modernity in his response to Havelock Ellis's review of 1883, offer a glimpse of the serious analysis Hardy applied to contemporary cultural currents. A letter to John Addington Symonds, an unjustifiable delay. But it seems unlikely that much that is significant will emerge, since, in the first place, there is good reason to suppose that much has been destroyed, and secondly, it is clear that, unlike Henry James, Hardy had neither reason nor inclination to use the letter as a record of impressions and ideas. I think that we ought to be sympathetic and grateful to the editors. The letters of a major novelist ought to be available even when they are not as rewarding as one might have hoped. The only

hand realized. There is also a striking appreciation of Maugham which indicates a great deal about the effort of his later prose. These insights are valuable because, although they hardly change our view of Hardy in a radical way, they do give slightly more access to the mind of this most reticent of writers.

But although I have not mentioned everything which has this kind of interest, it would not take long to provide an exhaustive list, and this hardly justifies the whole, expensive volume. In terms of its interest to students of Hardy, the justification of the volume is merely that everything that is available should be made available. Its role will be largely negative: it will confirm that what we know of Hardy in these years already is not going to be challenged by radically new material.

On the other hand, I think that this volume has a different kind of importance which has less to do with Hardy in particular than with the whole context of literary production in those crucial 30 years when the economies of publishing and the social relations of writer and public underwent such major changes. Many of these letters are to publishers and editors, and we have a very vivid sense of Hardy trying to find a market, trying to get the best deal for his work, threading his way through the intricate maze of international copyright and the legalities of theatrical adaptation. We have a very strong sense of a writer making a career and controlling increasingly the problems of his profession. This can be more than a matter of interesting detail about agreements and remuneration. Thus his attempts to sell his early fiction say a good deal about the way in which he read popular taste, and a letter about the relative offensiveness of the *Return of the Native* on the grounds of its remoteness shows an almost ironic determination not to allow the restrictions of ideology to repress the ultimate honesty of his fiction. This volume may disappoint Hardy students, but for anybody who is concerned with the social relations of literary production, it is an extremely valuable document.

John Goode

The principle of the self

Shelley: A Voice not Understood
by Timothy Webb
Manchester University Press, £11.95
ISBN 0 7190 0690 2

If Shelley's voice is still not understood, it is probably because his readers know too much rather than too little about him. 'Shelley's reputation was largely created out of factors which had little direct connexion with poetry but that reputation soon transferred itself from the realms of biography, ethics and politics to the realm of literary criticism.' Dr Webb does not attempt to remedy this situation by setting up an absolute distinction between the man and his work. As he shows, those critics in this century who insisted on such a distinction most strongly have also been the most unscrupulous in savagely misreading as Shelley the man into their discussion of his poetry.

His own admiration for Shelley's work clearly goes hand in hand with personal respect for the man. Consequently his treatment of the biographical problem in the first chapter consists of a demolition of the mythology that has accumulated around Shelley's name, largely thanks to the bias of early biographers and the prejudices of Victorian (and later) readers. Having cleared away the distortions and castrations of the real Shelley, Webb has fostered both uncritical admiration and hostile prejudice. Webb proceeds with an exposition of Shelley's views on literature, politics, philosophy and religion, designed to aid a full understanding of what Shelley was trying to do as a poet, and hence of the poetry itself. Shelley would not have accepted any distinction between his poetry and his wide-ranging intellectual interests, and Webb con-

stantly emphasizes this. In particular the importance and the precise nature of Shelley's religious beliefs, and their intimate connexion with his political concerns, are clearly brought out.

The account of Shelley's work is directed rather to readers of literature in general, than specifically to Shelley scholars, and the merit of this book is to be sound rather than challenging. But even specialists will be stimulated by the illuminating connections made between previously unrelated aspects of Shelley's work.

A good example of this is the use that Webb makes of Shelley's MS notes on Davy's *Elements of Agricultural Chemistry* in discussing 'The Sensitive Plant' and other late poems which reveal his intense interest in 'the everyday miracles of plant life'. Webb is able to make this kind of connexion between Shelley's poetry and his other interests thanks to his intimate familiarity not only with Shelley's published writings but also with his MSS; again and again a point is tellingly illustrated by reference to a discarded passage or a rough jotting in a notebook.

He is also very aware of the vast range of general information upon which the critic of Shelley must be able to draw. 'There is... behind much of the poetry an easy access of reference to the history of philosophy, scientific discovery, politics ancient and modern, the facts of nature, and almost the whole range of European literature from the Greek and Latin classics through Dante, Calderon and Goethe, including most of English poetry and drama.' They know not Shelley who only Shelley know. Webb's previous book on Shelley as a poetic translator demonstrated his command of the necessary linguistic resources; and the present work reveals a confident acquaint-

ance with the other areas of Shelley's intellectual world.

As an authoritative prolegomenon to the study of Shelley this work can hardly be faulted. Its expository nature does, however, entail certain limitations. Webb's discussion often seems to stop just when the critical issues involved become most interesting. For instance, he is right to argue that Shelley rejected the theory of art as 'self', but the social relations of literary production, it is an extremely valuable document.

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BOOKS

Irish order of mysteries

Yeats and Magic: the Earlier Works
 by Mary Catherine Flannery
 Collins Smythe, £6.50
 ISBN 0 901072 69 9

Looking at criticism of Yeats's work since his death is like seeing some excavated archaeological or building site where the strata are clear and the view is unobscured. The latest layer to be exposed is the magical. Earlier biographers and critics indicated its existence, but did not explore it so fully as is now becoming fashionable. Apart from recognizing Yeats's ability to write magically, critics and scholars have shown the power of his intellect, the range of his reading and the diversity of his experience. And it is remarkable how he stands up to that ever-expanding group, Yeats Industrial Academic Quartets, limited as they often are by concentration upon one aspect of his genius. The present study, however, illustrates what can be gained by a fresh look at the ample material available not only in print but in the poet's papers.

Mary Catherine Flannery offers genuinely new insights into some of Yeats's writings because she relates them firmly to his interest in magic (rather than mysticism), his early desire to be a magician,

that is, one more in control of affairs than a mystic. She links these passages in the carefully selected memories he arranged in *Autobiography* which deal with the supernatural, with magic, and with Irish myths, with those which emphasize his awareness of his power as a poet. And so she rightly emphasizes his interest in the East, in Indian and Middle Eastern thought.

There is a good account of Yeats's early interest in Blake and a recognition of his final criticism of Blake for not communicating clearly, for being a mystic rather than a magician. (It should be noted that the title of George Russell (A.E.), one of whose Ely Place murals, signed by both Yeats and Russell, are splendidly reproduced on the book's cover.) And while Flannery enjoys a tilt at Harold Bloom for deprecating Yeats's magical, she shows how Yeats was, in his own mind, a magician. On Yeats's attitudes to Ireland, his early desire to be a magician, and cabalistic elements. Having found correspondences between Indian, hermetic, theosophical and Blakean thought, he hoped to use pre-Christian Celtic thought as a source of a single, unified, single energy. Second, that the borders of our memories are as shifting, and

that our memories are a part of a great memory, the memory of Nature herself. And third that the great mind and great memory can be evoked by symbols.

These ideas were to appear and reappear in his work; and would become the symbols of the old, ritualistic art of poetry; he would no longer reflect life as in a mirror, but search for energy, the eternal gestures of life, and the words which his new style demanded. "Surely," says the author, "he thought, his magic and his poetry were integrated by 1912 in the poem 'Ego Dominus Tuus'."

There are very many good things here, then, some of them incidental, such as the point that Yeats's interest in aristocracy was formed very early on; some sensitive, such as the analysis of "The Scholars". There is a minor slip linking Yeats's ancestry with the Pollocks, not the Yeateses—and has anyone thought of the Cornish-Celtic contribution of the Pollocks to Yeats's genius?

In an age when articles are so often expanded into books, the reader must be grateful for the condensed brevity and clear argument of this 165-page book.

A. Norman Jeffares

Among this week's reviewers

Dr Isobel Armstrong is in the department of English at Leicester University. She is author of several books on Victorian poetry.

Dr D. J. Biddle is principal lecturer in cell biology at Thames Polytechnic.

Dr Peter Bryant is in the department of experimental psychology at London and is a fellow of St John's College.

John Gode is reader in English and comparative literature at Warwick University. His book on *Gissing* is to be published later this year.

Isaac Goodman is professor of polymers at the University of Bradford.

Barbara Hardy is professor of English at Hirkbeck College; her most recent book is *The Advantage of Lyric*.

A. Norman Jeffares is professor of English at Stirling University. His book, *A Commentary on the Collected Poems of Yeats* was published in 1968.

Muriel Roberts is professor of English at Keele University and author of *The Tradition of Romantic Morality*.

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